Pub[illegible] (1903) Department

[illegible]

G.O., No. 8632 I.
8645

DATED 8-9-1903.

[illegible]

11/9/03

Note [illegible]

[Despatch Abstract.]

[illegible]eriyar Project.

[illegible] report, submitted by the Chief Engineer for [illegible] the closure of the construction estimate [illegible] approved, and the report, together [illegible] of the Pros: ordered to be forwarded [illegible] for their orders.

[illegible]

Approving the report, submitted by the Chief Eng[illegible] for [illegible], on the closure of the construction estimate of the [illegible] forwarding it, together with a copy of the Pros. to the G. of I. for their orders.

[illegible] 8.9.03

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.
1887	29	11-10-02					

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

IRRIGATION.
ACCOUNT.

Government {1903} of Madras.

PUBLIC WORKS.

Recd. } 1903.
Regd.

Enclosures

Spare copies

G.O., Nos. 863, 864 I., 8th September 1903.

SEPTEMBER.

Periyar Project

Approving the report, submitted by the Chief Engineer for Irrigation, on the closure of the construction estimate of the —, and forwarding it, together with a copy of the Proceedings, to the Government of India for their orders.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

No. 178 I.

Report on the closure of the construction estimate of the Periyár Project.

Submitted to Government for transmission to the Government of India with reference to their letter No. 627 C.W.I., dated 11th May 1903.

2. In the circumstances stated under the head "Financial Results" in the completion report, it is considered that the project fulfils the conditions of a productive public work and that there should therefore be no change in its present classification. The Government of India may therefore be requested to withdraw the orders conveyed in their letter No. 1024 C.W.I., dated 2nd September 1902, printed with G.O., No. 1187 I., dated 11th October 1902, under which further sanctions under "Imperial 49. Capital Expenditure not charged to Revenue" are prohibited.

(Signed) J. P. DAVIDSON,
Ag. Chief Engineer for Irrigation.

10th August 1903.

ORDER—No. 863 I., dated 8th September 1903.

The report on the closure of the construction estimate of the Periyár project submitted by the Chief Engineer for Irrigation is approved.

2. Ordered that the report, together with a copy of these Proceedings, be forwarded to the Government of India with a request that the orders thereon may be communicated by wire to admit of funds provided under "49. Capital Expenditure not charged to Revenue" for expenditure on the project during the current year being fully utilized.

[Here enter No. 864 I., dated 8th September 1903.]

(True Extract.)

(Signed) J. P. DAVIDSON,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, VI Circle.
" Examiner, Public Works Accounts.
" Revenue Department.
" Financial Department.

ENDORSEMENT—No. 864 I., dated 8th September 1903.

Forwarded.

(By order.)

(Signed) J. P. DAVIDSON,
Ag. Joint Secretary to Government,
Irrigation Branch.

Exd. K. Murugesan.

PERIYAR PROJECT.

REPORT ON THE CLOSURE OF THE CONSTRUCTION ESTIMATE.

Brief history of the project.—The Periyár river rises in unsurveyed country approximately in north latitude 9°10′ and east longitude 77°30′ among the Western Ghauts. It runs northwards till it reaches north latitude 9°31′, where it turns due west for a short distance during which its course is within a few miles of the water-shed. It then turns northerly again gradually trending westwards and eventually reaches the sea near Cochin. It runs throughout within the territory of the Maharaja of Travancore.

2. On the other side of the water-shed is the British district of Madura in which the rainfall is sparse and precarious, and which has constantly been visited by famine, whereas the catchment of the Periyár enjoys an unfailing, and sometimes a heavy, rainfall. The first record of any proposal to utilize the Periyár river for irrigation in Madura dates back to 1808. From that time the subject was constantly discussed in more or less detail, investigations were made, and various projects submitted. Finally, Major Pennycuick, R.E., was placed on special duty in 1882 to prepare complete plans and estimates, and that officer submitted in the same year a report with detailed plans and estimates.

3. *Description of various estimates and causes of excess and statement of Capital cost to date of closure of construction estimate—First estimate sanctioned.*—The estimates for the project amounting to Rs. 61,85,000 for direct charges, or Rupees 64,39,913 including indirect charges were sanctioned by the Secretary of State in his despatch No. 53, Public Works, dated 18th September 1884, communicated with the Government of India letter No. 90 I., embodied in Proceedings of the Madras Government, No. 386 I., dated 29th May 1886. Owing to financial pressure, work on the project could not be commenced till August 1887 when the Government of India sanctioned an allotment of 1·50 lakhs. In course of execution of the work, it was found necessary to revise the estimates as the original provision for "Head works" and "Tools and Plant" was found insufficient.

Revised estimates of 1894.—In July 1894 revised estimates were submitted for the sanction of the Government of India. These estimates are compared below by departmental heads with the original estimates :—

Departmental heads.	Original estimates.	Revised estimates.
Direct Charges.		
Works—	RS.	RS.
(1) Head Works ...	30,80,000	43,47,000
(2) Main Canals and Branches ...	13,67,000	12,64,000
(3) Distributaries ...	7,53,000	7,15,000
	52,00,000	63,26,000
Establishment ...	9,25,000	14,01,000
Tools and Plant ...	60,000	7,57,000
Less receipts on Capital Account ...	...	— 13,000
Total ...	61,85,000	84,71,000
Indirect Charges.		
Loss by exchange ...	40,000	...
Capitalized abatement of land revenue ...	85,413	(*a*) 82,500
Leave and pension allowances ...	1,29,500	1,96,500
Total ...	2,54,913	2,79,000
Grand Total ...	64,39,913	87,50,000
Excess ...	23,10,087	

(*a*) Included in Tools and Plant under "Direct Charges".

4. The revised estimates exceeded the original estimates by about Rs. 23 lakhs and the causes of excesses are dealt with in the Chief Engineer's note which accompanied them.

P.M.G., No. 97 I., dated 3rd February 1894.

The principal cause was insufficiency of the rates allowed in the original estimates. In the original rates the price of machinery was included for each sub-head and a small sum of Rs. 60,000 was provided for tools and plant. In the course of execution it was found that the machinery was so mixed up with several sub-heads of different works that it was impossible to debit it equitably to each. A separate sub-head—Tools and plant—was therefore opened to which a sum of Rs. 7,57,000 was debited against the original provision of Rs. 60,000. In spite of this separation, the original rates were found to be insufficient. The rubble and concrete of which the main dam was composed cost about Rs. 33-8-0 for 100 cubic feet against Rs. 15 allowed in the original estimate. The quantities were also increased by a chasm discovered in the river-bed and extra work found necessary at the flanks. Generally, it was found that the difficulties in commencing operations were considerably under-estimated. These difficulties and the actual mode of operation adopted in carrying out the works are described in Mr. Mackenzie's history of the project, pages 109 to 116.

The reduction of Rs. 1,41,000 in the distribution works was due in general terms to the complete abandonment of the original estimates. The estimates for these works were prepared in 1872-73 and were not revised by Major Pennycuick, R.E., when he in 1882 revised the estimates for head works. The revision of these distribution works estimates was only made when the project estimates were revised, the alignment of the channels having been altered and the design for every masonry work completely redrawn, aqueducts or superpassages being substituted in every case for inlets or outlets provided in the original estimates with a saving of cost and increase in efficiency. The revised estimates were sanctioned by the Secretary of State in his despatch No. 38, Public Works, dated 26th July 1894, communicated with the letter from the Government of India, No. 197 I., dated 15th October 1894, printed in Proceedings of Madras Government, No. 1057 I., dated 22nd December 1894.

5. *Opening of the project.*—The project was finally opened on the 10th October 1895 by His Excellency Lord Wenlock, G.C.I.E., then Governor of Madras.

6. *Closure of construction estimate.*—Under the orders conveyed in the letter from the Government of India, No. 183 I., dated 17th July 1895, embodied in Proceedings of Madras Government, No. 602 I., dated 1st August 1895, the construction estimate of the project was closed on the 31st March 1897. On the date of the closure of the construction estimate, the head works were completed in all respects except the tower at the end of the main dam which was in progress. All works in the first to twelfth reaches of the main channel were practically completed. Work on the seventh branch channel was in abeyance and on the eleventh and twelfth branch channel had not been commenced. On all the other branch channels, work was in progress or almost completed.

7. *Outlay incurred up to 31st March* 1897.—The outlay incurred on the project up to 31st March 1897 compared by main and departmental heads with the revised estimate is as shown below :—

	Revised estimate.	Expenditure up to 31st March 1897.
Direct Charges.		
Works—	RS.	RS.
(1) Head works	43,47,000	42,26,700
(2) Main canals and branches	12,64,000	13,44,028
(3) Distributaries	7,15,000	4,99,024
Total ...	63,26,000	60,69,752
Establishment	14,01,000	13,46,177
Tools and plant	7,57,000	7,28,291
Less receipts on capital account	—13,000	—14,203
Total ...	84,71,000	81,30,017
Indirect Charges.		
Capitalized abatement of land revenue ...	82,500	34,661
Leave and pension allowances	1,96,500	1,88,466
Total ...	2,79,000	2,23,127
Grand Total ...	87,50,000	83,53,144

8. *Description of works as completed—Area commanded.*—The tract commanded by the Periyár project is bounded on the north by the Periyár main canal and on the south by the Vaigai river. The total culturable area according to a recent careful estimate is—

			ACS.
Government land commanded by the main canal and branches	...	1st crop	... 106,495
		2nd "	... 51,030
Whole inam and zamin wet land	...	1st "	... 20,460
		2nd "	... 8,970

9. *Supply available.*—In designing the distribution works the estimated delivery into the lake was taken at 32,900 millions cubic feet from which was deducted 1,740 millions for evaporation in the lake, 990 millions for evaporation in the Suruliyar and the Vaigai and 500 millions for preliminary absorption in the beds of these rivers leaving 29,670 millions available for irrigation. This quantity was considered to be easily capable of irrigating 90,000 acres of first crop and 60,000 acres of second crop. During the year 1896–97, the first year of supply, the amount delivered into the Periyár was about 24,000 millions of cubic feet and there was about 16,000 millions of cubic feet of surplus discharged over the escape. Adding 2,000 millions of cubic feet for evaporation on the Periyár lake and 1,000 millions for addition to the contents, the total delivery into the lake was 43,000 millions of cubic feet. The season 1896–97, however, chanced to be one of rather heavy rainfall. The delivery into the lake during the subsequent years allowing 1,740 millions cubic feet for evaporation was —

	MILLS. C.FT.
1897–98 ...	38,217
1898–99 ...	23,053
1899–1900 ...	26,289
	3)87,559
Or an average of ...	29,186

10. *Head works—Main dam.*—The main dam is 1,241 feet long at top, with 12 feet top width including parapets and bottom width 144′ 6″ at the lowest part. Height of dam is 176 feet above deep bed of the river. The dam as constructed abuts upon a low hill on each end. It has front and rear face walls of rubble masonry, the interior being filled with concrete in surki mortar. The front face is pointed with cement. The parapets are 2 feet thick and 3 feet high. The foundations are on solid rock throughout.

11. *Escape.*—The flood escape is on the right flank and is formed by cutting the rock to a length of 434 feet to a level 14 feet below the top of the main dam. A raised escape on the left flank originally proposed was abandoned and the depression filled by a masonry dam 221 feet long with its crest 2 feet above that of the main dam. A wing wall was added in front at the left or south end connected with high ground by a bank 240 feet long with top width 12 feet and crest 8 feet over the crest of the main dam. The side dam on the left is in section and structure similar to the main dam. The bank above the wing in front is heavily revetted and the slope in rear turfed. The parapet walls are built similar to those of the main dam with their tops + 160·00.

12. *Tunnel cutting.*—The passages through the water shed consist of—

(1) an open cutting to the tunnel proper 5,342 feet long on the south side,

(2) a tunnel 5,704 feet long,

(3) an open cutting 500 feet long on the north or Madura side.

The cutting on the south side which is known as the "water-shed cutting" consists of 3,000 feet on the level with bed at + 115·00 and the remaining 2,342 feet with a fall of 1 in 320, the bottom width being 21 feet throughout with sides vertical in rock and slopes $1\frac{1}{2}$ to 1 in earth. The tunnel proper is in rock throughout and has a sectional area of about 96 square feet with a gradient of 1 in 75. The maximum discharge through the tunnel has been taken as 1,100 cubic feet per second, but this can only be considered as approximate. The open cutting on the north or Madura side is 500 feet long and is from 0 to 20 feet in depth. It is 21 feet wide and has a fall of 1 in 250. The entrance to the tunnel is fitted with a Stoney's patent gate. The sluice chamber is $15\frac{1}{2}$ feet wide and $10\frac{1}{2}$ feet deep, internal dimensions, and is built of dressed stone in Portland cement mortar to $20\frac{1}{2}$ feet above floor and rubble in surki mortar above that level with the faces pointed with cement. On the upstream side a groove is provided for a temporary shutter and also a screen to prevent drifting trees, etc., being carried into the tunnel.

13. *Measuring weir.*—At the end of the open cutting on the north is a measuring weir 71′ 8″ long with a vent 8′ × 4′ through which the Periyár water enters into the natural bed of the Vairavanar and thence into the Suruliyar and the Vaigai. This work is intended for the purpose of gauging the discharging capacity of the tunnel.

14. Plate III is a general plan of the tract commanded by the project. It shows—

(*a*) the position of the old Peranai anicut across the Vaigai river,

(*b*) the position of the head and scouring sluices at Peranai as built,

(*c*) the courses of the main and branch channels as well as the distributaries,

(*d*) position of all Government and private tanks affected by the Periyár water and proposed to be retained,

(*e*) the position of all important masonry works constructed along the main and branch channels.

Peranai.—The Periyár water after leaving the tunnel first enters the bed of the Vairavanar, then that of the Suruliyar and lastly that of the Vaigai, and so reaches the Peranai anicut, an old work across the last-named river, distant about 86 miles from the tunnel. From this anicut the distributary channels take off, the anicut is, as stated, an old work of native construction and runs in a tortuous line skew to the river, having a length of 1,300 feet, of which 400 feet at the left end is about a foot higher than the rest. The only improvements made to the work are—

(1) the construction of a scouring sluice at the left end of the anicut,

(2) the construction of a head sluice for the main channel.

The scouring sluice has five vents each $5\frac{1}{2}'$ × 6′ worked by screw-gearing shutters from a platform $10\frac{1}{2}$ feet above the crest of the anicut, the sill of vents being $7\frac{1}{2}$ feet below the crest of anicut.

The head sluice which is built at right angles to the scouring sluice consists of 8 vents of 10 feet span with sluice gates $10\frac{3}{4}'$ × 9′ worked by double screws connected by a chain on toothed pinions. The sills of the vents are 6 feet below the crest of the anicut, the platform being at the same level as that of the scouring sluice. The head sluice is designed to pass about 2,016 cubic feet per second with an area of vents 480 square feet and velocity 4·20 feet.

As Peranai is the site selected for offtake channels from the Vaigai, the Vadagarai channel which had an open head from the Peranai, now takes off from the right bank of the Periyár main channel at 3 furlongs, 433 feet where a head sluice has been provided.

The main channel has a length of 35 miles, 7 furlongs 180 feet and is divided into 11 reaches. It was designed and constructed to discharge the supply shown in the following hydraulic statement:—

Number of reach.	Length.			Bottom width in feet.	Side slopes horizontal / vertical.	Depth of water in feet.	Bedfall in feet per mile.	Velocity in feet per second.	Discharge in cusecs.
	Miles.	Fur-longs.	Feet.						
1	0	3	362	100	$1\frac{1}{2}$ to 1	6	1·16	2·81	1,839
	1	7	525	72	..	6	1·16	2·91	1,414
	1	3	455	50	..	6	2·53	3·91	1,383
	2	2	498	80	..	6	·90	2·42	1,295
	1	1	201	Natchikulam tank.		..	..	..	..
2	2	7	293	71	..	6	1·13	2·68	1,286
3	6	6	5	67	..	6	1·20	2·75	1,254
4	1	2	79	62	..	6	1·21	2·70	1,150
5	1	4	650	51	..	6	1·24	2·72	980
	0	0	100	46	..	6	2·19	..	..
	0	0	100	44	..	6	2·19	..	..
	0	0	100	41	..	6	2·19	..	..
	0	0	100	39	..	6	2·19	..	..
	0	3	357	36	..	6	2·19	..	..
6	1	7	595	36	..	6	2·24	3·50	917
	0	4	200	Vedarkulam tank.		..	..	..	..
	1	3	257	48	..	6	1·25	2·72	932
7	1	6	640	47	..	6	1·25	2·71	912
8	1	1	533	46	..	6	1·25	2·71	895
9	1	1	521	43	..	6	1·27	2·72	840
10	0	6	292	27	..	6	1·37	2·65	572
11	6	2	590	15	..	6	1·59	2·60	374

From the main canal 12 branch channels take off, the total length of these when all are completed being 67 miles, 7 furlongs and 70 feet. The only channel remaining to be dug is No. 7 in the list, the excavation of which has for the present been postponed. The following table gives the mileage and full supply discharge of each of these branch channels.

Number of branch channel.	Length.			Bottom width in feet.	Side slopes, horizontal / vertical.	Depth of water in feet.	Bedfall in feet per mile.	Velocity in feet per second.	Discharge in cusecs.
	Miles.	Fur-longs.	Feet.						
1	6	..	245	12·00	$1\frac{1}{2}$ to 1	2	6	2·41	72
2	1	3	640	4·5	..	2	6	2·01	30
3	4	1	290	7·75	..	2	6	2·23	48
4	4	7	580	19·50	..	2	6	2·55	115
5	5	4	656	5·00	..	2	6	2·05	33
6	2	5	..	3·00	..	2	6	1·79	21
7	..	3	70	3·00	..	1·50	6	1·48	*12
8	5	..	594	4·00	..	2	6	1·94	27
9	10	1	07	30·00	..	3	3	2·54	261
10	8	1	200	27·5	..	3	3	2·51	241
11	5	2	300	12·00	..	2·75	3	2·10	93
12	13	6	344	28·00	..	4·00	1·5	2·37	323

* Field channel.

There are also 7 important subsidiary branch channels taking off, from Nos. 4, 9 and 10 in the list above given. The total length of these offtakes is $32\frac{1}{4}$ miles and they, like the branch channels, are maintained by Government.

In addition to the above, several minor distributaries or field channels have been dug from the branch channels, the position of the important ones being shown in dotted lines on Plate III.

15. *Comparison of completed cost with the revised estimate of* 1894.—*Statement A* of the Appendices to this report is a schedule of works carried out under the construction estimate of the project showing expenditure up to 31st March 1897, the date on which the construction estimate was closed. It shows that the total direct charges incurred against the estimate were Rs. 81,30,017 or Rs. 3,40,983 less than the sanctioned estimate.

Statement B (*Appendix*) is schedule of works sanctioned but not completed before the 31st March 1897 showing (*a*) expenditure up to that date and (*b*) probable further expenditure required to complete the works. The total outlay on these works up to 31st March 1897 was Rs. 38,54,992. The further outlay is estimated at Rs. 2,22,739 or Rs. 2,71,000 including establishment and tools and plant.

Statement C (Appendix) is a schedule, called for in paragraph 2 of the Government of India letter No. 304 I., dated 30th November 1897, printed in P.M.G. No. 1141 I., dated 22nd December 1897, of the estimates sanctioned against the Open Capital Account of the system. It includes all estimates sanctioned up to date. The total sanction under this head amounts to Rs. 3,86,038 of which Rs. 1,11,539 are for unremunerative works.

Statement D (Appendix) shows the comparison of expenditure by reaches and branch channels with provision in estimates sanctioned by the Secretary of State or the Government of India.

16. The following is a complete abstract showing all charges incurred up to 31st March 1897, the charges incurred under the Open Capital account up to the 31st March 1902, and the probable further charges required to complete the project. The total Rs. 94,91,340 represents the ultimate capital cost of the project so far as can at present be foreseen :—

Head of Account.	Outlay.			Probable future charges.	Total.
	To end of 31st March 1897.	Under Open Capital Account up to 31st March 1902.	Total.		
Direct charges.	RS.	RS.	RS.	RS.	RS.
Works	60,69,752	3,92,431	64,62,183	4,51,554	69,13,737
Establishment	13,46,177	82,046	14,28,223	97,360	15,25,583
Tools and Plant	7,28,291	— 4,360	7,23,931	..	7,23,931
Total ..	81,44,220	4,70,117	86,14,337	5,48,914	91,63,251
Less receipts on Capital Account	— 14,203	— 123	— 14,416	..	— 14,416
Net ..	81,30,017	4,69,904	85,99,921	5,48,914	1,48,835
Loss by exchange	..	..	..	..	..
Total Direct charges ..	81,30,017	4,69,904	85,99,921	5,48,914	1,48,835
Indirect charges.					
Capitalized abatement of Land Revenue ..	34,661	59,155	93,816	35,107	1,28,923
Leave and pension allowances	1,88,466	11,486	1,99,952	13,630	2,13,582
Total Indirect charges ..	2,23,127	70,641	2,93,768	48,737	3,42,505
Grand Total ..	83,53,144	5,40,545	88,93,689	5,97,651	94,91,340

17. *Financial results—Forecast which accompanied the revised estimate of* 1894.—The estimate of revenue on which the forecast statements which accompanied the revised estimate of 1894 was based is as shown below :—

—	First crop.	Increase.	Second crop.	Increase.	Total.
	ACS.	RS.	ACS.	RS.	RS.
I. Ryotwar occupied—					
(1) Dry	27,440	1,37,201	13,720	41,160	1,78,361
(2) Wet	43,446	93,919	21,723	52,428	1,46,347
II. Ryotwar occupied, including tank beds ..	33,744	2,15,048	24,526	94,355	3,04,403
III. Minor Inams—					
(1) Dry	4,847	24,236	2,424	7,271	31,507
(2) Wet	5,041	..	2,520	5,437	5,437
IV. Whole Inam and Zamindaris	..	..	8,000	24,000	24,000
	114,518	4,70,404	77,913	2,24,651	6,95,055

According to the above statement, the project was expected to yield a gross revenue of Rs. 6,95,055, to which a sum of Rs. 25,645, being 4 per cent. on sale-proceed of tank-bed lands (Rs. 6,41,133) was added making a gross revenue of Rupees 7,20,700. Deducting Rs. 1,61,924 being the anticipated working expenses (both direct and indirect), the net revenue was shown to be Rs. 5,58,776. The forecast statements showed that ten years after the completion of the work, *i.e.*, at the end of

1906–1907, there would be a net excess of charges amounting to Rs. 17,75,945, which, when added to Rs. 87,50,000, the total of the direct and indirect charges, would make the sum-at-charge of the project Rs. 1,05,25,945. The net revenue of Rupees 5,58,776 represented a return of 5·31 per cent. on the sum-at-charge.

The forecast referred to above was framed by taking the total estimate of the ultimate area (old and new irrigation) and revenue, and crediting annually for the first ten years a tenth to the project, and was therefore based on wrong assumptions. The actuals much exceeded the forecast figures which had therefore to be set aside. The Collector has now furnished two revised forecasts, which have been prepared with reference to letter, No. 410 C.W.I. of 11th April 1902, of the Government of India in which instructions were given that, with regard to the question whether the zamindari and inam lands advantageously situated should be supplied with the Periyár water in preference to Government lands situated at tail ends of channels, it might be assumed that the decision would be in favour of the former course. Forecast No. 1 shows that the area to be irrigated by the project would be 135,491 acres first crop, and 82,640 acres second crop, with a gross revenue of Rs. 8,31,724; while according to forecast No. 2 the ultimate area is expected to be 126,955 acres first crop, and 60,000 acres second crop, the gross revenue being Rs. 6,82,756. In both cases it is expected that the ultimate area will be reached in 1909–1910, or thirteen years after the date of the completion of the project.

G.O., No. 532 I., dated 12th May 1902.

With regard to these forecasts, the Executive Engineer, Madura division, writes: "In an ordinary average year after the settlement of the question of what land is to be irrigated, the return ought, when the cultivation extends and tank beds are sold, to be that given in forecast No. 2. In a very good year, it might be possible, after the project has settled, to reach the figure given in forecast No. 1. I should, however, not consider it a sound policy to base expectations on this basis and would prefer to adopt No. 2 which seems to me to be sounder. I do not say that we cannot work up to the higher estimate, but I consider that it will take some time to work up to, whereas No. 2 can be worked up to in a reasonable time".

The Board of Revenue agree with the Executive Engineer in considering that forecast No. 2 may be adopted as being safer and as being likely to be worked up to in a reasonable time.

Both the forecast statements are appended to this report. According to forecast No. 2, which the Board recommend for adoption, there will be a net excess of charges amounting to Rs. 19,28,737 at the end of the tenth year after the completion of the project (1896–97). This, when added to the Capital outlay (direct and indirect), makes the sum-at-charge of the project Rs. 1,14, 20,077. At that period the net revenue will be Rs. 4,79,805, which is equivalent to a return of 4·20 per cent. on the sum-at-charge.

It must be noted that, at the end of the tenth year, the project does not irrigate the ultimate area which is expected to be reached only in 1909–1910, or the thirteenth year after the completion of the project. At this period, the net return on the sum-at-charge will be 4·70 per cent.

18. For an irrigation work to be classed as "productive" it must satisfy one of the following conditions:—

(*a*) There must be good reason to believe that the revenue from it will, within ten years after the probable date of completion, repay the annual interest on the capital invested with all arrears of simple interest up to that date, and also the capitalized value of land revenue and of leave allowances and pensions.

(*b*) If the system has been completed for more than ten years it must pay, on the average, at least 4 per cent. on the sum at charge.

The project, according to the second of the two forecasts, repays the annual interest on the capital invested in 1904–1905, or the eighth year after completion, and gives a return of 4·20 per cent. on the sum-at-charge at the end of the tenth year; but the full amount of interest and indirect charges will be repaid only at the end of

the 25th year after completion. The project does not therefore fully satisfy the first of the two conditions quoted above. It, however, fulfils the second condition, as, at the end of the tenth year it is expected to pay a return of over 4 per cent. on the sum-at-charge; there is always, moreover, the chance of the higher figures shown in forecast No. 1 being worked up to. In these circumstances, it is considered that the project should continue to be classed as a productive public work, and the restrictions placed by the Government of India on further sanctions under "Imperial—49. Capital Expenditure not charged to Revenue—Open Capital Account" should be withdrawn.

19. The following plates are appended to the report :—

(1) *Plate I.*—Sketch-map of the Periyár Project showing the Periyár and Vaigai rivers and the locality affected by the project.

(2) *Plate II* showing the plan of lake and ground in its immediate neighbourhood with contours at 50 feet vertical intervals.

(3) *Plate III* showing the main and branch channels, etc., of the project.

(4) *Plate IV* showing the cross section of the main dam.

(5) *Plate V* showing the plan and section of the water-shed tunnel.

(Signed) J. P. DAVIDSON,
Ag. Chief Engineer for Irrigation.

According to Forecast No. I.

PERIYÁR PROJECT.

TABLE I.—Summary of actual and estimated direct charges on capital account.

—	Works. Land compensation.	Works. Other works.	Works. Total.	Establishment.	Tools and plant.	Total.	Less receipts on capital account.	Net total.
1	2	3	4	5	6	7	8	9
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Actuals to end of 1896-97	1,14,898	59,54,854	60,69,752	13,46,177	7,28,291	81,44,220	14,203	81,30,017
,, during 1897-98	5,725	1,32,205	1,37,930	29,265	— 4,360	1,62,835	..	1,62,835
,, ,, 1898-99	8,740	1,07,305	1,16,045	24,045	..	1,40,090	..	1,40,090
,, ,, 1899-1900	4,456	57,923	62,379	12,935	..	75,314	..	75,314
,, ,, 1900-1901	2,585	38,475	41,060	8,979	..	50,039	..	50,039
,, ,, 1901-1902	5,344	29,673	35,017	6,822	..	41,839	213	41,626
	26,850	3,65,581	3,92,431	82,046	— 4,360	4,70,117	213	4,69,904
Total, Actuals ..	1,41,748	63,20,435	64,62,183	14,28,223	7,23,931	86,14,337	14,416	85,99,921
Final grant, 1902-1903	4,277	36,849	41,126	8,474	..	49,600	..	49,600
Budget estimate, 1903-1904	23,968	2,74,660	2,98,628	63,172	..	3,61,800	..	3,61,800
Amounts included in the programme for the year ending 1905-1906. 1904-1905 ..	..	66,800	66,800	15,364	..	82,164	..	82,164
Amounts included in the programme for the year ending 1905-1906. 1905-1906 ..	..	45,000	45,000	10,350	..	55,350	..	55,350
Total ..	28,245	4,23,309	4,51,554	97,360	..	5,48,914	..	5,48,914
Grand Total ..	1,69,993	67,43,744	69,13,737	15,25,583	7,23,931	91,63,251	14,416	91,48,835

Table II.—Summary of actual and estimated indirect charges on capital account.

Years.		Capitalized abatement of land revenue.	Leave and pension allowances.	Total.
		RS.	RS.	RS.
Actuals to end of 1896-97	.. ..	34,661	1,88,466	2,23,127
Actuals during 1897-98	.. ..	9,062	4,097	13,159
,, ,, 1898-99	.. ..	9,011	3,366	12,377
,, ,, 1899-1900	.. ..	12,548	1,811	14,359
,, ,, 1900-1901	.. ..	14,096	1,257	15,353
,, ,, 1901-1902	.. ..	14,438	955	15,393
		59,155	11,486	70,641
Total, Actuals	..	93,816	1,99,952	2,93,768
Final grant,	1902-1903	5,346	1,186	6,532
Budget estimate,	1903-1904	29,761	8,844	38,605
Amounts included in the programme for the year ending 1905-1906.	1904-1905	..	2,151	2,151
	1905-1906	..	1,449	1,449
Total	..	35,107	13,630	48,737
Grand Total	..	1,28,923	2,13,582	3,42,505

Table III.—Estimate of the growth of irrigation and revenue receipts and charges with reference to the Board's revised forecast No. I.

Years.	Area charged as irrigated at end of each year.		Estimate of revenue receipts and charges.					
			Gross revenue due to improvements.			Working expenses (Direct and Indirect).	Net revenue due to works.	
	First crop.	Second crop.	Direct.	Indirect.	Total.		Including indirect revenue.	Excluding indirect revenue.
1	2	3	4	5	6	7	8	9
	ACS.	ACS.	RS.	RS.	RS.	RS.	RS.	
Actuals to end of 1896-97 ..	..	..	..	1,10,395	1,10,395	44,180	66,215	..
Actuals during 1897-98 ..	72,365	22,040	684	2,10,894	2,11,578	89,565	1,22,013	..
,, 1898-99 ..	79,377	29,648	581	2,76,702	2,77,283	1,33,553	1,43,730	..
,, 1899-1900 ..	93,373	35,859	1,220	3,41,050	3,42,270	1,25,337	2,16,933	..
,, 1900-1901 ..	104,352	38,517	1,624	4,07,625	4,09,249	1,06,511	3,02,738	..
* ,, 1901-1902 ..	110,799	43,063	1,615	4,65,664	4,67,279	1,24,967	3,42,312	..
Total, Actuals ..	..	..	5,724	18,12,330	18,18,054	6,24,113	11,93,941	..
Probable during 1902-1903.	108,514	57,660	1,600	5,09,794	5,11,394	1,60,040	3,51,354	..
Estimate for 1903-1904 ..	113,941	63,170	1,600	5,79,369	5,80,969	1,67,268	4,13,701	..
,, 1904-1905 ..	119,321	66,630	2,000	6,48,649	6,50,649	1,71,017	4,79,632	..
,, 1905-1906 ..	124,691	71,190	2,000	7,17,129	7,19,129	1,74,433	5,44,696	..
,, 1906-1907 ..	130,131	75,650	2,000	7,88,869	7,90,869	1,78,073	6,12,796	..
Total ..	..	..	9,200	32,43,810	32,53,010	8,50,831	24,02,179	..
Grand Total	..	..	14,924	50,56,140	50,71,064	14,74,944	35,96,120	..

* The figures for this year are actuals as given by the Board of Revenue.

TABLE IV.—Estimate of net financial results.

Years.	Direct Capital outlay during the year.	Direct Capital outlay to end of the year.	Simple interest at 4 per cent. on outlay to end of 31st March 1900, 3½ thereafter, and on half the outlay of the year.	Net revenue including indirect revenue (column 8 of Table III).	Simple interest *less* net revenue.	Net revenue *less* simple interest.
1	2	3	4	5	6	7
	RS.	RS.	RS.	RS.	RS.	RS.
Actuals to end of 1896-97 ..	..	81,30,017	16,06,402	66,215	15,40,187	..
Actuals during 1897-98 ..	1,62,835	82,92,852	3,28,457	1,22,013	2,06,044	..
,, 1898-99 ..	1,40,090	84,32,942	3,34,516	1,43,730	1,90,786	..
,, 1899-1900 ..	75,314	85,08,256	3,38,824	2,16,933	1,21,891	..
,, 1900-1901 ..	50,039	85,58,295	3,41,268	3,02,738	38,530	..
,, 1901-1902 ..	41,626	85,99,921	3,42,987	3,42,312	675	..
Total ..	..	..	32,92,454	11,93,941	20,98,513	..
Final grant for 1902-1903 ..	49,600	86,49,521	3,44,698	3,51,354	..	6,656
Budget estimate, 1903-1904 ..	3,61,800	90,11,321	3,52,411	4,13,701	..	61,290
Estimate, 1904-1905 ..	82,164	90,93,485	3,60,736	4,79,632	..	1,18,896
,, 1905-1906 ..	55,350	91,48,835	3,63,314	5,44,696	..	1,81,384
,, 1906-1907 ..	..	91,48,835	3,64,352	6,12,796	..	2,48,444
	..	..	17,85,511	24,02,179	..	6,16,670
Total ..	..	..	50,77,965	35,96,120	20,98,513	6,16,670
	..	..	..	..	14,81,845	

According to Forecast No. II.

TABLE I.—Summary of actual and estimated direct charges on capital account.

	Works.			Establishment.	Tools and plant.	Total.	Less receipts on capital account.	Net total.
	Land compensation.	Other works.	Total.					
1	2	3	4	5	6	7	8	9
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Actuals to end of 1896-97 ..	1,14,898	59,54,854	60,69,752	13,46,177	7,28,291	81,44,220	14,203	81,30,017
Actuals during 1897-98 ..	5,725	1,32,205	1,37,930	29,265	— 4,360	1,62,835	..	1,62,835
,, ,, 1898-99 ..	8,740	1,07,305	1,16,045	24,045	..	1,40,090	..	1,40,090
,, ,, 1899-1900 ..	4,456	57,923	62,379	12,935	..	75,314	..	75,314
,, ,, 1900-1901 .	2,585	38,475	41,060	8,979	..	50,039	..	50,039
,, ,, 1901-1902 ..	5,344	29,673	35,017	6,822	..	41,839	213	41,626
	26,850	3,65,581	3,92,431	82,046	— 4,360	4,70,117	213	4,69,904
Total, Actuals ..	1,41,748	63,20,435	64,62,183	14,28,223	7,23,931	86,14,337	14,416	85,99,921
Final grant, 1902-1903 ..	4,277	36,849	41,126	8,474	..	49,600	..	49,600
Budget estimate, 1903-1904 ..	23,968	2,74,660	2,98,628	63,172	..	3,61,800	..	3,61,800
Amounts included in the programme for the year ending 1905-1906. 1904-1905.	..	66,800	66,800	15,364	..	82,164	..	82,164
1905-1906.	..	45,000	45,000	10,350	..	55,350	..	55,350
Total ..	28,245	4,23,309	4,51,554	97,360	..	5,48,914	..	5,48,914
Grand Total .	1,69,993	67,43,744	69,13,737	15,25,583	7,23,931	91,63,251	14,416	91,48,835

TABLE II.—Summary of actual and estimated indirect charges on capital account.

Years.	Capitalized abatement of land revenue.	Leave and pension allowances	Total.
	RS.	RS.	RS.
Actuals to end of 1896-97	34,661	1,88,466	2,23,127
Actuals during 1897-98	9,062	4 097	13,159
,, 1898-99	9,011	3,366	12,377
,, 1899-1900	12,548	1,811	14,359
,, 1900-1901	14,096	1,257	15,353
,, 1901-1902	14,438	955	15,393
	59,155	11,486	70,641
Total, Actuals ..	93,816	1,99,952	2,93,768
Final grant, 1902-1903	5,346	1,186	6,532
Budget estimate, 1903-1904	29,761	8,844	38,605
Amounts included in the programme for the year ending 1905-1906. 1904-1905	..	2,151	2,151
Amounts included in the programme for the year ending 1905-1906. 1905-1906	..	1,449	1,449
Total ..	35,107	13,630	48,737
Grand Total ..	1,28,923	2,13,582	3,42,505

TABLE III.—Estimate of the growth of irrigation and revenue receipts and charges.

Years.	Area charged as irrigated at end of each year.		Estimate of revenue receipts and charges.					
			Gross revenue due to improvements.			Working expenses (direct and indirect).	Net revenue due to works.	
	First crop.	Second crop.	Direct.	Indirect.	Total.		Including indirect revenue.	Excluding indirect revenue.
1	2	3	4	5	6	7	8	9
	ACS.	ACS.	RS.	RS.	RS.	RS.	RS.	
Actuals to end of 1896-97 ..	..	..	..	1,10,395	1,10,395	44,180	66,215	..
Actuals during 1897- 98 ..	72,365	22,040	684	2,10,894	2,11,578	89,565	1,22,013	..
,, ,, 1898- 99 ..	79,377	29,648	581	2,76,702	2,77,283	1,33,553	1,43,730	..
,, ,, 1899-1900 ..	93,373	35,859	1,220	3,41,050	3,42,270	1,25,337	2,16,933	..
,, ,, 1900-1901 ..	104,352	38,517	1,624	4,07,625	4,09,249	1,06,511	3,02,738	..
*,, ,, 1901-1902 ..	110,799	43,063	1,615	4,65,664	4,67,279	1,24,967	3,42,312	..
	..	..	5,724	18,12,330	18,18,054	6,24,113	11,93,941	..
Revised estimate, 1902-1903 ..	106,813	44,015	1,600	4,66,200	4,67,800	1,56,750	3,11,050	..
Budget estimate, 1903-1904 ..	110,535	46,630	1,600	4,95,494	4,97,094	1,53,789	3,43,305	..
Estimate, 1904-1905	114,215	49,185	2,000	5,47,851	5,49,851	1,61,448	3,88,403	..
,, 1905-1906	117,885	51,850	2,000	5,94,496	5,96,496	1,63,772	4,32,724	..
,, 1906-1907	121,595	54,405	2,000	6,44,086	6,46,086	1,66,281	4,79,805	..
	..	..	9,200	27,48,127	27,57,327	8,02,040	19,55,287	..
Total ..	..	..	14,924	45,60,457	45,75,381	14,26,153	31,49,228	..
Estimate, 1907-1908	123,945	56,270	2,000	6,59,151	6,61,151	1,66,115	4,95,036	..
,, 1908-1909	126,325	58,125	2,000	6,74,296	6,76,296	1,66,895	5,09,401	..
,, 1909-1910	126,955	60,000	2,000	6,80,756	6,82,756	1,66,000	5,16,756	..
	..	..	6,000	20,14,203	20,20,203	4,99,010	15,21,193	..
Total ..	..	..	20,024	65,74,660	65,95,584	19,25,163	46,70,421	..
Estimate, 1910-11	..	..	2,000	6,80,756	6,82,756	1,66,000	5,16,756	..
,, 1911-12	..	..	2,000	6,80,756	6,82,756	1,66,000	5,16,756	..
,, 1912-13	..	..	2,000	6,80,756	6,82,756	1,66,000	5,16,756	..
,, 1913-14	..	..	2,000	6,80,756	6,82,756	1,66,000	5,16,756	..
,, 1914-15	..	..	2,000	6,80,756	6,82,756	1,66,000	5,16,756	..
,, 1915-16	..	..	2,000	6,80,756	6,82,756	1,66,000	5,16,756	..
,, 1916-17	..	..	2,000	6,80,756	6,82,756	1,66,000	5,16,756	..
,, 1917-18	..	..	2,000	6,80,756	6,82,756	1,66,000	5,16,756	..
,, 1918-19	..	..	2,000	6,80,756	6,82,756	1,66,000	5,16,756	..
,, 1919-20	..	..	2,000	6,80,756	6,82,756	1,66,000	5,16,756	..
Total ..	..	..	20,000	68,07,560	68,27,560	16,60,000	51,67,560	..
Grand total ..	..	..	40,924	1,33,82,220	1,34,23,144	35,85,163	98,37,981	..

* The figures for this year are actuals as given by the Board of Revenue.

TABLE IV.—Estimate of net Financial results.

Years.	Direct capital outlay during the year.	Direct capital outlay to end of the year.	Simple interest at 4 per cent. on outlay to end of 31st March 1900, $3\frac{3}{4}$ thereafter and on half the outlay of the year.	Net revenue including indirect revenue (column 8 of Table III).	Simple interest *less* net revenue.	Net revenue *less* simple interest.
1	2	3	4	5	6	7
	RS.	RS.	RS.	RS.	RS.	RS.
Actuals to end of 1896-97 ..	..	81,30,017	16,06,402	66,215	15,40,187	..
Actuals during 1897-98 ..	1,62,835	82,92,852	3,28,457	1,22,013	2,06,044	..
,, ,, 1898-99 ..	1,40,090	84,32,942	3,34,516	1,43,730	1,90,786	..
,, ,, 1899-1900 ..	75,314	85,08,256	3,38,824	2,16,933	1,21,891	..
,, ,, 1900-1901 ..	50,039	85,58,295	3,41,268	3,02,738	38,530	..
,, ,, 1901-1902 ..	41,626	85,99,921	3,42,987	3,42,312	675	..
Total ..	..	..	32,92,454	11,93,941	20,98,513	..
Final grant for 1902-1903 ..	49,600	86,49,521	3,44,698	3,11,050	33,648	..
Budget estimate, 1903-1904 ..	3,61,800	90,11,321	3,52,411	3,43,305	9,106	..
Estimate, 1904-1905 ..	82,164	90,93,485	3,60,736	3,88,403	..	27,667
,, 1905-1906 ..	55,350	91,48,835	3,63,314	4,32,724	..	69,410
,, 1906-1907 ..	..	91,48,835	3,64,352	4,79,805	..	1,15,453
	..	..	17,85,511	19,55,287	42,754	2,12,530
Total ..	..	..	50,77,965	31,49,228	21,41,267	2,12,530
Estimate, 1907-1908	..	91,48,835	3,64,352	4,95,036	..	1,30,864
,, 1908-1909	..	91,48,835	3,64,352	5,09,401	..	1,45,049
,, 1909-1910	..	91,48,835	3,64,352	5,16,756	..	1,52,404
	..	..	10,93,056	15,21,193	..	4,28,137
Total ..	..	..	61,71,021	46,70,421	21,41,267	6,40,667
Estimate, 1910-11	..	91,48,835	3,64,352	5,16,756	..	1,52,404
,, 1911-12	..	91,48,835	3,64,352	5,16,756	..	1,52,404
,, 1912-13	..	91,48,835	3,64,352	5,16,756	..	1,52,404
,, 1913-14	..	91,48,835	3,64,352	5,16,756	..	1,52,404
,, 1914-15	..	91,48,835	3,64,352	5,16,756	..	1,52,404
,, 1915-16	..	91,48,835	3,64,352	5,16,756	..	1,52,404
,, 1916-17	..	91,48,835	3,64,352	5,16,756	..	1,52,404
,, 1917-18	..	91,48,835	3,64,352	5,16,756	..	1,52,404
,, 1918-19	..	91,48,835	3,64,352	5,16,756	..	1,52,404
,, 1919-20	..	91,48,835	3,64,352	5,16,756	..	1,52,404
Total ..	..	..	36,13,520	51,67,560	..	15,24,040
Grand Total ..	..	..	98,14,541	98,37,981	21,41,267	21,64,707
						21,41,267
						23,440

PERIYAR PROJECT.

STATEMENT A.—Schedule of works carried out under the construction estimate showing expenditure to 31st March 1897, the date on which the construction estimate sanctioned by the Secretary of State was closed.

Serial number.	Classification. Main head.	Classification. Sub-head.	Names of works.	Amount of estimate.	Expenditure to end of 31st March 1897.	Difference. Saving.	Difference. Excess.	Reference to order sanctioning the estimate.	Explanation of important variations between estimate and expenditure.
			49. IRRIGATION. CAPITAL EXPENDITURE ON PUBLIC WORKS NOT CHARGED AGAINST REVENUE. PERIYAR PROJECT. *Direct charges.* I. Works.	RS.	RS.	RS.	RS.		
1	(1) Head works ..	1. Preliminary expenses.	Preliminary expenses	80,355	81,086	..	731		
2	Do. ..	3. Works ..	Main dam	24,60,000	24,18,297	41,703	..		
3	Do. ..	Do. ..	Temporary dams	29,115	29,115	..	..	G.O., No. 97 I., dated 3rd February 1894.	
4	Do. ..	Do. ..	Right bank escape	2,70,000	2,71,202	..	1,202		
5	Do. ..	Do. ..	Left ,, ...	79,885	90,882	..	10,997		
6	Do. ..	Do. ..	Watershed cutting	2,47,000	2,48,337	..	1,337	G.O., No. 97 I., dated 3rd February 1894; G.O., No. 557 I., dated 13th July 1895, and No. 763 I., dated 20th September 1895.	Excess due to the change of the design directed by the Chief Engineer in his notes printed in the progress report for March 1895, *vide* G.O., No. 448 I., dated 30th May 1895.
7	Do. ..	Do. ..	,, tunnel	4,94,000	5,26,009	..	32,009	G.O., No. 97 I., dated 3rd February 1894, and No. 131 I., dated 6th February 1896.	Excess due to a larger outlay having been incurred on sluices and to the provision of a measuring weir at a cost of Rs. 3,000 *vide* G.O., No. 131 I., dated 6th February 1896.
8	Do. ..	4. Buildings ..	Buildings	3,50,000	2,82,981	67,019	..		
9	Do. ..	5. Miscellaneous ..	Miscellaneous items	1,80,000	1,76,547	3,453	..	G.O., No. 97 I., dated 3rd February 1894.	
10	Do. ..	6. Maintenance ..	Maintenance during construction	96,645	74,559	22,086	..		
11	Do. ..	Unforeseen works.	Unforeseen works	60,000	27,685	32,315	..		
			Total (1) Head works ..	43,47,000	42,26,700	1,20,300	..		
12	(2) Main Canals and branches.	Preliminary expenses	Surveying, lockspitting, etc.	24,708	24,650	58	..		
13	Do. ..	Land	I. Reach	18,191	18,373	..	182		
14	Do. ..	Do.	II. ,, ...	6,988	7,421	..	433		
15	Do. ..	Do.	III. ,, ...	19,396	19,549	..	153		
16	Do. ..	Do.	IV. ,, ...	5,584	5,610	..	26		
17	Do. ..	Do.	V. ,, ...	9,501	9,463	38	..		
18	Do. ..	Do.	VI. ,, ...	3,837	4,171	..	334	G.O., No. 97 I., dated 3rd February 1894.	
19	Do. ..	Do.	VII. ,, ...	2,209	2,499	..	290		
20	Do. ..	Do.	VIII. ,, ...	1,038	1,296	..	258		
21	Do. ..	Do.	IX. ,, ...	725	725	..	..		
22	Do. ..	Do.	X. ,, ...	361	367	..	6		
23	Do. ..	Do.	XI. ,, ...	5,854	4,050	1,804	..		
24	Do. ..	Do.	XII. ,, ...	500	..	500	..		

Statement A.—Schedule of works carried out under the construction estimate showing expenditure to 31st March 1897, the date on which the construction estimate sanctioned by the Secretary of State was closed—*cont.*

Serial number.	Classification. Main head.	Classification. Sub-head.	Names of works.	Amount of estimate.	Expenditure to end of 31st March 1897.	Difference. Saving.	Difference. Excess.	Reference to order sanctioning the estimate.	Explanation of important variations between estimate and expenditure.
			49. IRRIGATION—*cont.*	RS.	RS.	RS.	RS.		
			I. Reach.						
25	(2) Main Canals and branches.	Regulators	Head sluice to Peranay; Scouring sluice at Peranay; Head sluice to Vadagarai channel; Store shed at Peranay; Irrigation sluice at 1 mile, 180 feet; Do. at 5 miles, 4 furlongs	50,834	49,928	906	..	G.O. No. 97 I., dated 3rd February 1894.	
			II. Reach.						
26	(2) Main Canals and branches.	Regulators	Regulator, and sluice to supply Rengasamudram tank.	12,190	11,225	965	..		
			III. Reach.						
27	(2) Main Canals and branches.	Regulators	Sluices Nos. 1 to 3, and sluice at 11 miles 5 furlongs and 500 feet.	5,496	7,971	..	2,475		
			IV. Reach.						
28	(2) Main Canals and branches.	Regulators	Sluice	1,388	1,388	..	..		
29	Do.	Do.	V. Reach	..	693	..	693		
30	Do.	Do.	VII. Reach	..	543	..	543		
			VIII. Reach.						
31	(2) Main Canals and branches.	Regulators	Regulator and bridge combined	8,150	7,944	206	..		
			IX. Reach.						
32	(2) Main Canals and branches.	Regulators	Sluice	650	633	17	..		
			X. Reach.						
33	(2) Main Canals and branches.	Regulators	Sluice	650	..	650	..		
			XI. Reach.						
34	(2) Main Canals and branches.	Regulators	Sluice	1,150	..	1,150	..		
			I. Reach.						
35	(2) Main Canals and branches.	Falls and weirs	Fall and bridge	6,625	4,500	2,125	..		
			III. Reach.						
36	(2) Main Canals and branches.	Falls and weirs	Drop	2,075	2,075	..	..		
			IV. Reach.						
37	(2) Main Canals and branches.	Falls and weirs	Weir for Koravangolam tank	592	750	..	..		
38	Do.	Do.	Weir in the Koravangolam closing	158					
			VI. Reach.						
39	(2) Main Canals and branches.	Falls and weirs	Weir at the west end of Vedakulam tank	3,929	3,929	..	..		

			VIII. Reach.						
40	(2) Main canals and branches.	Falls and weir ..	Outlet weir, Papakulam right bank	2,440	2,440	..	..	G.O., No. 97 I., dated 3rd February 1894.	
41	Do.	Do. ..	Do. do. left bank						
			XI. Reach.						
42	(2) Main canals and branches.	Falls and weir ..	Outlet weir to Davimangalam tank	1,780	5,961	1,499	..		
43	Do.	Do. ..	Do. to Pudukulam tank	2,830					
44	Do.	Do. ..	Number 2 outlet weir to Pudukulam tank	1,700					
45	Do.	Do. ..	One fall	1,150					
			XII. Reach.						
46	(2) Main canals and branches.	Falls and weir ..	One fall	1,000	..	1,000	..		
			II. Reach.						
47	(2) Main canals and branches.	Rivers and hill torrent works.	Aqueduct of 3 vents	17,485	(a) 17,485	..	..		(a) Included under F (1) in the administrative accounts.
			I. Reach.						
48	(2) Main canals and branches.	Other cross drainage works.	Surplus sluice for Ramarajapuram tank	34,543	76,023	1,921	..		
49	Do.	Do.	Culvert at 4 furlongs	9,310					
50	Do.	Do.	Do. at 2 miles, 4 furlongs	7,250					
51	Do.	Do.	Sheet iron trough	1,000					
52	Do.	Do.	Aqueduct at 2 miles, 7 furlongs and 234 feet	5,441					
53	Do.	Do.	Culvert at 3 miles, 1 furlong and 470 feet	3,545					
54	Do.	Do.	Aqueduct at 3 miles, 3 furlongs and 500 feet	4,858					
55	Do.	Do.	Culvert at 5 miles, 4 furlongs	3,120					
56	Do.	Do.	Do. at Ramarajapuram	5,035					
			II. Reach.						
57	(2) Main canals and branches.	Other cross drainage works.	Culvert at 8 miles..	5,070	28,384	..	..		
58	Do.	Do.	Aqueduct of 2 vents at 10 miles	19,874					
59	Do.	Do.	Cross drainage works	3,440					
			III. Reach.						
60	Do.	Do.	Superpassage	15,418	1,10,733	1	..		
61	(2) Main canals and branches.	Other cross drainage works.	Aqueduct of 3 vents	24,852					
62	Do.	Do.	Superpassage at 13 miles	12,736					
63	Do.	Do.	Do. at 14 miles	15,747					
64	Do.	Do.	Do. at 15 miles	11,749					
65	Do.	Do.	Do. at 15 miles, 4 furlongs and 589 feet ..	15,757					
66	Do.	Do.	Do. at 15 miles, 7 furlongs and 410 feet ..	14,253					
			IV. Reach.						
67	(2) Main canals and branches.	Other cross drainage works.	Culvert at left approach, 3rd accommodation bridge ..	222	..	..	..		
68	Do.	Do.	Do. at 17 miles and 3 feet	6,767	8,978	..	..		
69	Do.	Do.	Sheet iron trough	1,033					
70	Do.	Do.	Do. (new one)	1,178					

Statement A.—Schedule of works carried out under the construction estimate showing expenditure to 31st March 1897, the date on which the construction estimates sanctioned by the Secretary of State was closed—*cont.*

Serial number.	Classification. Main head.	Classification. Sub-head.	Names of works.	Amount of estimate.	Expenditure to end of 31st March 1897.	Difference. Saving.	Difference. Excess.	Reference to order sanctioning the estimate.	Explanation of important variation between estimate and expenditure.
			49. IRRIGATION—*cont.*	RS.	RS.	RS.	RS.		
			V. Reach.						
71	(2) Main canals and branches.	Other cross drainage works.	Superpassage for Shattiyar crossing	17,211					
72	Do.	Do.	Do. for Marangaliar	26,615					
73	Do.	Do.	Iron trough at 18 miles, 6 furlongs	853	55,374	..	1		
74	Do.	Do.	Do. at 19 miles and 400 feet	857					
75	Do.	Do.	Culvert at 19 miles and 279 feet	6,379					
76	Do.	Do.	Do. at 19 miles, 6 furlongs and 489 feet	3,458					
			VI. Reach.						
77	(2) Main canals and branches.	Other cross drainage works.	Syphon culvert at 21 miles, 4 furlongs and 475 feet ..	4,324					
78	Do.	Do.	Do. at 21 miles, 7 furlongs and 322 feet ..	4,941					
79	Do.	Do.	Sheet iron trough at 21 miles, 7 furlongs and 500 feet..	782	22,265	572	..		
80	Do.	Do.	Superpassage	8,890					
81	Do.	Do.	Culvert at 24 miles, 1 furlong and 110 feet	2,889					
82	Do.	Do.	Sheet iron trough at 24 miles, 2 furlongs and 360 feet..	1,011					
			VII. Reach.						
83	(2) Main canals and branches.	Other cross drainage works.	Culvert at 24 miles, 6 furlongs and 212 feet	3,701					
84	Do.	Do.	Superpassage at 25 miles, 4 furlongs and 70 feet ..	10,192	20,402	..	1,233		
85	Do.	Do.	Culvert at 26 miles, 3 furlongs and 350 feet	6,509				G.O., No. 97 I., dated 3rd February 1894.	
			VIII. Reach.						
86	(2) Main canals and branches.	Other cross drainage works.	Diverting Vaguram odai to Kannimar odai	1,000	1,054	..	54		
			IX. Reach.						
87	(2) Main canals and branches.	Other cross drainage works.	Culvert at 27 miles, 6 furlongs and 100 feet	7,093					
88	Do.	Do.	Do. at 28 miles, 2 furlongs and 560 feet	5,546	12,640	..	1		
			X. Reach.						
89	(2) Main canals and branches.	Other cross drainage works.	Culvert at 28 miles, 7 furlongs and 300 feet	3,509					
90	Do.	Do.	Do. at 29 miles, 4 furlongs and 420 feet	5,667	9,177	..	1		
			XI. Reach.						
91	(2) Main canals and branches.	Other cross drainage works.	Culvert at 30 miles, 3 furlongs and 570 feet	3,500					
92	Do.	Do.	Superpassage at 31 miles, 240 feet	3,850					
93	Do.	Do.	Do. at 32 miles, 5 furlongs and 410 feet ..	4,000					
94	Do.	Do.	Culvert at 33 miles, 3 furlongs	1,210					
95	Do.	Do.	Do. at 33 miles, 3 furlongs and 600 feet	1,110					
96	Do.	Do.	Do. at 33 miles, 4 furlongs and 320 feet	1,320	28,769	..	5,999		
97	Do.	Do.	Outlet weir to Siruvalai tank at 34 miles, 4 furlongs and 260 feet.	1,730					

98	Do.	Do. ..	Outlet weir to Odayanenthal tank at 35 miles 2 furlongs and 400 feet.	3,050					G.O., No. 97 I., dated 3rd February 1894.
99	Do.	Do. ..	Three iron troughs	3,000					
			XII. Reach.						
100	(2) Main canals and Branches.	Other cross drainage works.	One outlet weir	1,000	..	1,000	..		
			I. Reach.						
101	(2) Main canals and Branches.	Bridges ..	Bridge for South Indian Railway	14,860					
102	Do.	Do. ..	Bridge at 1 mile 4 furlongs and 803 feet	2,716	26,138	..	..		
103	Do.	Do. ..	Accommodation bridge to replace the one built by the ryots at 4 miles.	3,148					
104	Do.	Do. ..	Bridge at 7 miles	5,414					
			II. Reach.						
105	(2) Main canals and Branches.	Bridges ..	Bridge	5,903	5,903	..	..		
			III. Reach.						
106	(2) Main canals and Branches.	Bridges ..	No. 1. Accommodation bridge	3,290					
107	Do.	Do. ..	„ 2. Do.	3,385	10,632	..	..		
108	Do.	Do. ..	„ 3. Do.	3,957					
			IV. Reach.						
109	(2) Main canals and Branches.	Bridges ..	Bridges at 17 miles 7 furlong 495 feet	3,100	3,071	29	..		
			V. Reach.						
110	(2) Main canals and Branches.	Bridges ..	Bridge	3,809	7,361	..	..		
111	Do.	Do. ..	Do.	3,552					
			VI. Reach.						
112	(2) Main canals and Branches.	Bridges ..	Bridge at 20 miles 6 furlongs and 300 feet	2,100					
113	Do.	Do. ..	Do. at 21 miles 5 furlongs and 640 feet	2,600	7,975	119	..		
114	Do.	Do. ..	Do. at 23 miles 1 furlong and 64 feet near Velichinattam.	3,394					
			VII. Reach.						
115	(2) Main canals and Branches.	Bridges ..	Bridge at 24 miles 7 furlongs, 480 feet	3,864					
116	Do.	Do. ..	Do. across cart-track from Thoplampatti to hills at 26 miles 2 furlongs 160 feet.	3,140	4,641	2,683	..		
117	Do.	Do. ..	Culvert in the north approach to Nattam bridge ..	330					
			X. Reach.						
118	(2) Main canals and Branches.	Bridges ..	Bridge at 29 miles 1 furlong and 240 feet	2,000	1,998	2	..		
			XI. Reach.						
119	(2) Main canals and Branches.	Bridges ..	Bridge at 30 miles 1 fulong	2,160					
120	Do.	Do. ..	Do. at 32 miles 3 furlongs and 580 feet	1,450	4,231	..	2,869		
121	Do.	Do. ..	One bridge near Pulippatti tract	2,500					
122	Do.	Do. ..	Do. near Kunjatunni tank near Vellalapattitrack.	1,000					

Statement A—Schedule of works carried out under the construction estimate showing expenditure to 31st March 1897, the date on which the construction estimate sanctioned by the Secretary of State was closed—*cont.*

Serial number.	Classification. Main head.	Classification. Sub-head.	Names of works.	Amount of estimate.	Expenditure to end of 31st March 1897.	Difference. Saving.	Difference. Excess.	Reference to order sanctioning the estimate.	Explanation of important variations between estimate and expenditure.
			49. IRRIGATION—*cont.*	RS.	RS.	RS.	RS.		
			I. Reach.						
123	(2) Main Canals and Branches.	Buildings ..	Lascar shed at Ramarajapuram	1,693					
124	Do.	Do. ..	Storeshed at Peranai: Improving—	98					
125	Do.	Do. ..	Do. do.	1,206	6,453	..	367		
126	Do.	Do. ..	Nachikulam shed repairs	253					
127	Do.	Do. ..	Lascar shed No. 1 at Peranai	1,419					
128	Do.	Do. ..	Do. No. 2 do.	1,417					
			II. Reach.						
129	(2) Main Canals and Branches.	Buildings ..	Buildings	..	310	..	310		
			III. Reach.						
130	(2) Main Canals and Branches.	Buildings ..	Rest-house at Andipatti	244	1,968	..	1,719		
			V. Reach.						
131	(2) Main Canals and Branches.	Buildings ..	Rest-house with outhouses at Mettupatti	4,214	4,627	..	327		
132	Do.	Do. ..	Do. maintenance	86					
			VIII. Reach.						
133	(2) Main Canals and Branches.	Buildings ..	Rest-house at Kallandri	2,232	2,930	..	698		
			IX. Reach.						
134	(2) Main Canals and Branches.	Buildings ..	Shed at Mangalam	445				G.O., No. 97 I., dated 3rd February 1894.	
135	Do.	Do. ..	Rest-house for No. II Division near Nachikulam ..	2,708					
136	Do.	Do. ..	Stables and bath-rooms attached to Peranai storeshed.	111					
137	Do.	Do. ..	Providing roofing doors and windows to the store head at Peranai.	674					
138	Do.	Do. ..	Providing roofing doors and windows to the rest-house at Nachikulam.	60					
139	Do.	Do. ..	Rest-house at Nachikulam: Demolishing	78	..	14,438	..		
140	Do.	Do. ..	Thatched shed at Peranai	67					
141	Do.	Do. ..	Constructing a rest-house at Andipatti in 3rd reach with out-houses.	2,480					
142	Do.	Do. ..	Constructing cook-room and stable for rest-house at Kallandri in the 8th reach.	1,115					
143	Do.	Do. ..	One new bungalow at Pulipatti, 11th reach ..	3,400					
144	Do.	Do. ..	Lascar's shed at regulator in the 2nd reach	1,650					
145	Do.	Do. ..	Do. for regulator at the 8th reach	1,650					
			X. Reach.						
146	(2) Main Canals and Branches.	Buildings ..	Buildings	..	98	..	98		

			XI. Reach.						
147	(2) Main Canals and Branches.	Buildings	Buildings	..	7,221	..	7,221	G.O., No. 97 I., dated 3rd February 1894.	
			I. Reach.						
148	(2) Main Canals and Branches.	Earthwork	Earthwork	1,50,000	1,81,151	..	30,393		Excess due to sub-soil met with in course of excavation having been of a different nature from that anticipated.
149	Do.	Do.	Embankment to left Vadagarai channel	260					
150	Do.	Do.	Embanking Vadagarai channel left bank	498					
			II. Reach.						
151	(2) Main Canals and Branches.	Earthwork	Earthwork	53,541	53,541	..	..		
			III. Reach.						
152	(2) Main Canals and Branches.	Earthwork	Earthwork	1,03,033	1,03,644	..	416		
153	Do.	Do.	Annual repairs to banks	195					
			IV. Reach.						
154	(2) Main Canals and Branches.	Earthwork	Earthwork	24,992	24,992	..	..		
			V. Reach.						
155	(2) Main Canals and Branches.	Earthwork	Earthwork	30,300	30,300	..	..		
			VI. Reach.						
156	(2) Main Canals and Branches.	Earthwork	Earthwork	49,300	51,395	..	2,095		
			VII. Reach.						
157	(2) Main Canals and Branches.	Earthwork	Earthwork	22,405	22,405	..	..		
			VIII. Reach.						
158	(2) Main Canals and Branches.	Earthwork	Earthwork	14,500	14,952	..	442		
			IX. Reach.						
159	(2) Main Canals and Branches.	Earthwork	Earthwork	10,099	10,108	..	9		
			X. Reach.						
160	(2) Main Canals and Branches.	Earthwork	Earthwork	4,200	4,305	..	105		
			XI. Reach.						
161	(2) Main Canals and Branches.	Earthwork	Earthwork	39,512	65,398	..	25,886		Excess due to payment of extra rates for excavation of harder soil than anticipated.
			XII. Reach.						
162	(2) Main Canals and Branches.	Earthwork	Earthwork	6,000	6,532	..	532		
			General.						
163	(2) Main Canals and Branches.	Miscellaneous	Demarcating the line of main and branch channels from the beginning to the end and land required for Government buildings.	6,300	5,433	867	..		
164	Do.	Do.	Sluice at 5 feet 10 chains	298	3,613	..	1,127		
165	Do.	Do.	Sluice at 12 miles, 3 furlongs and 150 feet	632					
166	Do.	Do.	,, at Valangulam channel	729					
167	Do.	Do.	,, at right bank	572					
168	Do.	Do.	,, ,,	260					
169	Do.	Maintenance	Maintenance of work during construction	17,098	3,380	13,718	..		

Statement A.—Schedule of works carried out under the construction estimate showing expenditure to 31st March 1897, the date on which the construction estimate sanctioned by the Secretary of State was closed—*cont.*

Serial number.	Classification. Main head.	Classification. Sub-head.	Names of works.	Amount of estimate.	Expenditure to end of 31st March 1897.	Difference. Saving	Difference. Excess.	Reference to order sanctioning the estimate.	Explanation of important variations between estimate and expenditure.
			49. IRRIGATION—*cont.*	RS.	RS.	RS.	RS.		
			I. Reach.						
170	(2) Main Canals and Branches.	Maintenance ..	Culvert No. 1 in Mattaparai fields at 2 miles 7 furlongs. Repairs to —.	164					
171	Do. ..	Do. ..	Culvert No. 2 in Mattaparai fields at 3 miles 1 furlong and 400 feet. Repairs to —.	102					
172	Do. ..	Do. ..	Culvert No. 3 in Mattaparai fields at 3 miles 3 furlongs 460 feet. Repairs to —.	130					
173	Do. ..	Do. ..	Culvert at 6 miles between Ramarajapuram and Nachikulam tanks.	84					
174	Do. ..	Do. ..	Working shutters at Ramarajapuram surplus sluice ..	454					
175	Do. ..	Do. ..	Do. do. do. ..	518					
176	Do. ..	Do. ..	Working shutters of head and scouring sluice and Vadagarai head sluices at Paranai.	489					
177	Do. ..	Do. ..	Do. do.	518					
178	Do. ..	Do. ..	Branches in banks of Mattaparai fields in 2nd, 3rd and 4th miles, closing.	164	30,286	..	23,293		
179	Do. ..	Do. ..	First 2½ miles, maintenance	500					
180	Do. ..	Do. ..	Culvert at 3 miles 3 furlongs, maintenance	145					
181	Do. ..	Do. ..	,, at 2 ,, 7 ,, ,, ...	81					
182	Do. ..	Do. ..	Strengthening old wing of Peranai anicut and joining front wing.	86					
183	Do. ..	Do. ..	Gravelling Nachikulam tank bund, 1st reach ..	320					Excess due to want of provision in the revised estimate of the project for the upkeep and general maintenance, silt clearance, etc., of channels.
184	Do. ..	Do. ..	Culvert at 3 miles 1 furlong, maintenance	140					
185	Do. ..	Do. ..	,, at 3 ,, 7 furlongs ,, ...	138				G.O., No. 97 I., dated 3rd February 1894.	
			Providing tin covers to screw shafts to regulator, 1st reach.	90					
186	Do. ..	Do. ..	Repairing the culvert at 2 miles 2 furlongs, 1st reach..	170					
187	Do. ..	Do. ..	Raising banks to full height	2,000					
188	Do. ..	Do. ..	Cutting approaches to regulator at 7 miles 3 furlongs..	700					
189	Do. ..	Do. ..							
			II. Reach.						
190	(2) Main Canals and Branches.	Maintenance ..	Main channel maintenance	1,455					
191	Do. ..	Do. ..	Raising banks to full height	709					
192	Do. ..	Do. ..	Paving trough of No. 2 masonry work for cart traffic ..	336					
193	Do. ..	Do. ..	Training the drainage channels through No. 3 masonry dam.	509					
194	Do. ..	Do. ..	No. 2 Cross drainage works, repairs	86					
			Removing silt in the bed of main channel	817	9,215	..	3,961		
195	Do. ..	Do. ..	Temporary lascars to work the screw shutters in regulator, 2nd reach, 7 miles 3 furlongs.	162					
196	Do. ..	Do. ..	Maintenance and repairs, masonry works, 2nd reach ..	260					
197	Do. ..	Do. ..	Removing two barriers and making a road-way from Vadipatty to 2nd cross drainage work, 2nd reach.	610					
198	Do. ..	Do. ..	Repairing 2nd cross drainage works and its approaches at 8 miles 5 furlongs and 485 feet.	290					

			III. Reach.						
199	(2) Main canals and Branches.	Maintenance ..	Maintaining main channel	370					
200	Do.	Do. ..	Do. rest-house, Andipatty	36					
201	Do.	Do. ..	Do. and repairing earthwork and masonry ..	708					
202	Do.	Do. ..	Forming dry stone apron to superpassage at No. 6 cross drainage work.	175					
203	Do.	Do. ..	Clearing silt in No. 6 cross drainage work	130					
204	Do.	Do. ..	Clearing and widening diversion cut at No. 1 cross drainage work.	214					
205	Do.	Do. ..	Clearing silt in 5th cross drainage	48					
206	Do.	Do. ..	Extending dry stone apron to superpassage at 2nd cross drainage and 4th cross drainage works.	218					
207	Do.	Do. ..	Strengthening main channel at 17 miles	353					
208	Do.	Do. ..	Maintaining 3rd Reach	392					
209	Do.	Do. ..	Do. masonry works	468					
210	Do.	Do. ..	Closing breaches and maintenance and repairs to earthwork.	1,353					
211	Do.	Do. ..	Andipatty rest-house, maintaining	47	11,489	..	2,499	G.O., No. 97 I., dated 3rd February 1894.	
212	Do.	Do. ..	Do. do. maintenance	70					
213	Do.	Do. ..	Strengthening weak portions, main channel banks, at 5th cross drainage works.	665					
214	Do.	Do. ..	Strengthening banks of main channel near Thathakavundanpatty.	260					
215	Do.	Do. ..	Maintaining main channel	372					
216	Do.	Do. ..	Closing gaps in right bank of main channel at Nullah below, 1st accommodation bridge.	370					
217	Do.	Do. ..	Raising and strengthening both banks of third reach above 3rd cross drainge work.	600					
218	Do.	Do. ..	Raising and widening low portions of banks between 6th and 7th cross drainage works	1,060					
219	Do.	Do. ..	Two bankers to look after 3rd reach	144					
220	Do.	Do. ..	Widening diversion cut leading to 6th cross drainage work at 15 miles, 4 furlongs	250					
221	Do.	Do. ..	Closing breaches and clearing silt in diversion cut leading to 4th, 5th cross drainage works, 3rd reach.	250					
			IV. Reach.						
222	Do.	Do. ..	Maintaining main channel	149					
223	Do.	Do. ..	Do. do.	161					
224	Do.	Do. ..	Closing breaches and repairs	55					
225	Do.	Do. ..	Removing barriers in the channel	460					
226	Do.	Do. ..	Rooting out sambai or bulrush	278					
227	Do.	Do. ..	Cutting drainage channel to Kuravankolam fields to protect the eastern toe.	160	3,108	...	1,274	G.O., No. 97 I., dated 3rd February 1894.	
228	Do.	Do. ..	Two bankers to look after 4th reach	144					
229	Do.	Do. ..	Clearing slush from culvert at 17 miles, 3 furlongs and 321 feet.	127					
230	Do.	Do. ..	Repairing banks, 4th reach	300					

Statement A.—Schedule of works carried out under the construction estimate showing expenditure to 31st March 1897, the date on which the construction estimate sanctioned by the Secretary of State was closed—*cont.*

Serial number.	Classification.		Name of works.	Amount of estimate.	Expenditure to end of 31st March 1897.	Difference.		Reference to order sanctioning the estimate.	Explanation of important variations between estimate and expenditure.
	Main head.	Sub-head.				Saving.	Excess.		
			49. IRRIGATION—*cont.*	RS.	RS.	RS.	RS.		
			V. Reach.						
231	(2) Main Canals and Branches.	Maintenance ..	Maintaining main channel	200					
232	Do.	Do. ..	Maintaining rest and storehouse at Mettupatty ..	46					
233	Do.	Do. ..	Maintaining rest house at Mettupatty	86					
234	Do.	Do. ..	Closing breaches and repairs	101					
235	Do.	Do. ..	Rooting out sambai or bulrush	399					
236	Do.	Do. ..	Closing gaps and strengthening work portions of banks in.	..					
237	Do.	Do. ..	Marangaliyar valley	143					
238	Do.	Do. ..	Maintaining 5th reach	177					
239	Do.	Do. ..	Widening nullah at superpassage, Marangaliyar ..	300					
240	Do.	Do. ..	Raising and strengthening low portions of 5th reach banks.	1,450	6,624	..	1,968		
241	Do.	Do. ..	Groynes at superpassage and revetment to 5th reach at Shaittayar.	480					
242	Do.	Do. ..	Periodical repairs to rest house, Mettupatty	323					
243	Do.	Do. ..	Repairing and deepening well attached to rest house, Mettupatty.	126					
244	Do.	Do. ..	Revetment at low portions on the outside of left bank main channel.	100					
245	Do.	Do. ..	Clearing silt in the vents of culvert, 19 miles, 6 furlongs.	75					
246	Do.	Do. ..	Revetment to superpassage of Marangaliyar, 5th reach.	650					
			VI. Reach.						
247	(2) Main Canals and Branches.	Maintenance ..	Closing breaches and repairs	457					
248	Do.	Do. ..	Maintaining retaining wall to rear dry stone apron of superpassage at Kuthikal odai.	174					
249	Do.	Do. ..	Raising Poolampatty tank bund overlaying main channel.	150				G.O., No. 97 I., dated 3rd February 1894.	
250	Do.	Do. ..	Closing breaches in Kuthikal odai	273	3,498	..	1,386		
251	Do.	Do. ..	Maintaining main channel	167					
252	Do.	Do. ..	Protection at the head of diversion cut and revetment to superpassage at Kuthikal odai.	333					
253	Do.	Do. ..	Repairing both banks, 6th reach	300					
254	Do.	Do. ..	Cutting a catch drain to divert a small nullah along the outer toe of left bank.	258					
			VII Reach.						
255	(2) Main Canals and Branches	Maintenance ..	Shed at chittampatty	25					
256	Do.	Do. ..	Closing breaches	146					
257	Do.	Do. ..	Maintaining	473					
258	Do.	Do. ..	Do.	1,520					
259	Do.	Do. ..	Maintaining culvert Sandi odai	200					

260	Do.	Do. ..	Maintaining superpassage Alanangachi odai ..	100				
261	Do.	Do. ..	Do. Kunnimar odai	150				
262	Do.	Do. ..	Revetting the rear slope of left bank from Nattam bridge to cocoanut tope (28·32 chains).	170				
			VIII. Reach.					
263	(2) Main Canals and Branches.	Maintenance ..	Rest-house, Kallandry. Maintaining —	28	1,007	..	468	
264	Do.	Do. ..	Do. do.	26				
265	Do.	Do. ..	Do. do.	170				
266	Do.	Do. ..	Maintaining main channel, 8th reach	300				
267	Do.	Do. ..	Do. do.	15				
			IX. Reach.					
268	(2) Main Canals and Branches.	Maintenance ..	Maintaining main channel, 9th reach	550	1,897	..	852	
269	Do.	Do. ..	Maintaining culvert Valayapattan odai	100				
270	Do.	Do. ..	Do. Periyanayini odai	150				
271	Do.	Do. ..	Shed at Mangolam	25				
272	Do.	Do. ..	Maintenance and repairs to 9th reach	220				
			X. Reach.					
273	(2) Main Canals and Branches.	Maintenance ..	Maintenance and repairs to 10th reach	360	2,826	..	1,404	
274	Do.	Do. ..	Maintaining main channel, 10th reach	600				
275	Do.	Do. ..	Do. culvert Vellalachi odai	212				
276	Do.	Do. ..	Do. Karungadi odai	250				
			XI. Reach.					G.O., No. 97 I., dated 3rd February 1894.
277	(2) Main Canals and Branches.	Maintenance ..	Shed Kidaripatty maintenance	15	2,181	..	1,854	
278	Do.	Do. ..	Watchman for rest-houses, 3rd, 5th, 8th, 10th and 11th reaches.	312				
			Total (2) Main Canals and Branches ..	12,64,000	13,44,028	..	80,028	
279	(3) Distributaries.	Preliminary ..	Old outlay	7,665	7,665	..	..	
			2nd Branch Channel.					
280	(3) Distributaries.	Preliminary ..	Preliminary expenses	150	150	..	..	
			3rd Branch Channel.					
281	(3) Distributaries.	Preliminary ..	Preliminary expenses	134	1,276	..	..	
282	Do.	Do. ..	,, 3, 4, 5, and 6 branch channels ..	1,142				
			5th Branch Channel.					
283	(3) Distributaries.	Preliminary ..	Surveying and lock-spitting	313	313	..	..	
			6th Branch Channel.					
284	(3) Distributaries.	Preliminary ..	Surveying and lock spitting	92	92	..	..	
284A	Do.	Do. ..	Alighning and lock-spitting the distributary channel and taking levels.	1,000	850	150	..	
285	Do.	Land	1st Branch channel, 43 acres wet	15,554	9,204	6,350	..	
286	Do.	Do.	2nd ,, 18 ,, dry	810	425	385	..	

Statement A.—Schedule of works carried out under the construction estimate showing expenditure to 31st March 1897, the date on which the construction estimates sanctioned by the Secretary of State was closed—*cont.*

Serial number.	Classification. Main head.	Classification. Sub-head.	Names of works.	Amount of estimate.	Expenditure to end of 31st March 1897.	Difference. Saving.	Difference. Excess.	Reference to order sanctioning the estimate.	Explanation of important variations between estimate and expenditure.
			IRRIGATION—*cont.*						
			6th Branch Channel—*cont.*	RS.	RS.	RS.	RS.		
287	(3) Distributaries.	Land	3rd Branch channel, 70 acres dry	3,150	2,714	436	..	G.O., No. 97 I., dated 3rd February 1894.	
288	Do.	Do.	4th " 180 "	8,100	6,053	2,047	..		
289	Do.	Do.	5th " 55 "	2,525	906	1,619	..		
290	Do.	Do.	6th " 15 "	1,221	971	250	..		
291	Do.	Do.	7th " 20 "	1,000	44	956	..		
292	Do.	Do.	8th " 60 "	2,900	770	2,130	..		
293	Do.	Do.	9th " 290 "	12,950	4,270	8,680	..		
294	Do.	Do.	10th " 5 acres wet, 295 acres dry ..	12,075	8,044	4,031	..		
295	Do.	Do.	11th " 7 acres dry	3,150	2,379	771	..		
296	Do.	Do.	12th " 130 acres dry	5,850	5,567	283	..		
			1st Branch Channel.						
297	(3) Distributaries.	Regulators ..	Head sluice	936	4,310	..	2,260		
			2nd Branch Channel.						
298	(3) Distributaries.	Regulators ..	Head sluice	1,114					
			3rd Branch Channel.						
299	(3) Distributaries.	Regulators ..	Head sluice	2,260	1,624	2,260	..		
300	Do.	Do.	Do.	1,624					
			4th Branch Channel.						
301	(3) Distributaries.	Regulators ..	Head sluice	1,864	5,394	..	1,408		
302	Do.	Do. ..	Do.	1,431					
303	Do.	Do. ..	No. 1 regulator at 1 mile 5 furlongs and 470 feet for Thandalay tank.	448					
304	Do.	Do. ..	No. 4 regulator for Thandalay tank at the off-take of the minor distributary from Thandalay.	243					
			5th Branch Channel.						
305	(3) Distributaries.	Regulators ..	Head sluice	1,071	1,071	..	480		
306	Do.	Do. ..	Regulator	480					
			6th Branch Channel.						
307	(3) Distributaries.	Regulators ..	Head sluice	1,100	733	367	..		
			7th Branch Channel.						
308	(3) Distributaries.	Regulators ..	Head sluice	1,100	914	186	..		
			8th Branch Channel.						
309	(3) Distributaries.	Regulators ..	Head sluice	1,100	1,205	855	..		
310	Do.	Do. ..	Two regulators	960					
			9th Branch Channel.						
311	(3) Distributaries.	Regulators ..	Five regulators	1,920	..	..	..		
312	Do.	Do. ..	Head sluice at 28 miles 7 furlongs 100 feet	2,440					
313	Do.	Do. ..	Regulator and drop combined to Chittampatti off-take at 2 miles 40 feet.	540					

314	Do.	Do.	Regulator and drop combined to Kunnathur offtake ..	590				
			10th Branch Channel.					
315	(3) Distributaries.	Regulators ..	Head sluice	1,150				
316	Do.	Do. ..	Do.	840				
317	Do.	Do. ..	3 Regulators	1,440	3,629	2,231	..	
318	Do.	Do. ..	Head sluice, 30 miles 320 feet	2,430				
			11th Branch Channel.					
319	(3) Distributaries.	Regulators ..	Head sluice	1,050				
320	Do.	Do. ..	Regulator	480	..	1,530	..	
			12th Branch Channel.					
321	(3) Distributaries.	Regulators ..	Head sluice	2,500				
322	Do.	Do. ..	3. Regulators	1,440	..	3,940	..	
			I. Branch Channel.					
323	(3) Distributaries.	Falls and weirs ..	No. 1, fall and sluice combined	931				
324	Do.	Do. ..	,, 2 do. do.	671				
325	Do.	Do. ..	,, 3 do. do.	912				
326	Do.	Do. ..	,, 4 do. do.	809				
327	Do.	Do. ..	,, 5 do. do.	819				
328	Do.	Do. ..	,, 6 do. do.	832	5,808	388	..	
329	Do.	Do. ..	,, 7 do. do.	834				
330	Do.	Do. ..	Lump sum	388				
			II. Branch Channel.					
331	(3) Distributaries.	Falls and weirs ..	Fall and sluice combined at 3 furlongs 62 feet ..	992				G.O., No. 97 I., dated 3rd February 1894.
332	Do.	Do. ..	Do. at 1 mile 3 furlongs and 14 feet ..	1,013				
333	Do.	Do. ..	Fall	640	2,005	640	..	
			III. Branch Channel.					
334	(3) Distributaries.	Falls and weirs ..	Two falls	1,440				
335	Do.	Do. ..	One fall	980				
336	Do.	Do. ..	One fall	1,092				
337	Do.	Do. ..	No. 1, fall and sluice combined	1,147				
338	Do.	Do. ..	,, 2 do. do.	660				
339	Do.	Do. ..	,, 3 do. do.	994				
340	Do.	Do. ..	Fall	827	9,461	348	..	
341	Do.	Do. ..	Do.	827				
342	Do.	Do. ..	Do.	744				
343	Do.	Do. ..	Seventh fall and sluice combined	1,098				
			IV. Branch Channel.					
344	(3) Distributaries.	Falls and weirs ..	Fall with 2 sluices combined at 2 furlongs 444 feet ..	1,072				
345	Do.	Do. ..	No. 2, fall in Thandalay branch at 5 furlongs 9 feet ..	673				
346	Do.	Do. ..	Fall at 7 furlongs 463 feet	1,010				
347	Do.	Do. ..	No. 3, fall and road tunnel combined in the Thandalay branch at 7 furlongs 589 feet.	944				
348	Do.	Do. ..	Fall at 1 mile 2 furlongs and 488 feet	947	17,197	1,817	..	
349	Do.	Do. ..	Fall and weirs combined at 1 mile 7 furlongs and 207 feet.	1,105				
350	Do.	Do. ..	Fall and weirs combined at 1 mile 7 furlongs and 609 feet.	921				

Statement A.—Schedule of works carried out under the construction estimate showing expenditure to 31st March 1897, the date on which the construction estimate sanctioned by the Secretary of State was closed—*cont.*

Serial number.	Classification. Main head.	Classification. Sub-head.	Names of works.	Amount of estimate.	Expenditure to end of 31st March 1897.	Difference. Saving.	Difference. Excess.	Reference to order sanctioning the estimate.	Explanation of important variations between estimate and expenditure.
			49. IRRIGATION—*cont.*	RS.	RS.	RS.	RS.		
			IV. Branch Channel—*cont.*						
351	(3) Distributaries—*cont.*	Falls and weirs—*cont.*	No. 5, fall at 2 miles 2 furlongs and 117 feet	877					
352	Do.	Do.	Fall at 2 miles 3 furlongs and 539 feet	316					
353	Do.	Do.	No. 6, fall at 2 miles 5 furlongs and 437 feet	779					
354	Do.	Do.	Fall and 2 sluices combined at 2 miles 5 furlongs and 519 feet.	678					
355	Do.	Do.	No. 7, fall with two sluices at 3 miles 557 feet	988					
356	Do.	Do.	No. 8, fall at 3 miles 3 furlongs and 570 feet	932					
357	Do.	Do.	Fall and sluices combined at 4 miles 3 furlongs and 500 feet.	744					
358	Do.	Do.	No. 10, fall with two sluices combined at 4 miles 4 furlongs and 432 feet.	984					
359	Do.	Do.	No. 9, fall and sluices combined at 4 miles 7 furlongs and 360 feet.	723					
360	Do.	Do.	No. 1, fall with two sluices in the minor distributary, Thandalay branch at 4 furlongs 560 feet.	610	17,194	1,817	..		
361	Do.	Do.	No. 2, fall with two sluices in the minor distributary, Thandalay branch, 5 furlongs 300 feet.	380					
362	Do.	Do.	No. 3, fall with two sluices in the minor distributary, Thandalay branch, 6 furlongs 400 feet.	460					
363	Do.	Do.	No. 4, fall with two sluices in the minor distributary, Thandalay branch, 1 mile 2 furlongs and 200 feet.	610					
364	Do.	Do.	No. 5, fall with two sluices in the minor distributary, Thandalay branch, 1 mile 3 furlongs and 540 feet.	360					
365	Do.	Do.	Two falls	1,280				G.O., No. 97 I., dated 3rd February 1894.	
366	Do.	Do.	One fall	870					
367	Do.	Do.	One fall	750					
			V. Branch Channel.						
368	(3) Distributarie.	Falls and weirs.	Three falls	2,010					
369	Do.	Do.	Four ,,	2,560					
370	Do.	Do.	Two ,,	1,220					
371	Do.	Do.	Two ,,	1,180					
372	Do.	Do.	Fall No. 1 (aqueduct and sluice combined) at 350 feet.	799	5,289	4,152	..		
373	Do.	Do.	Do. 2 at 1 furlong 90 feet	284					
374	Do.	Do.	Do. 3 at 1 ,, 440 feet	478					
375	Do.	Do.	Sluice in Achampatti tank combined with fall No. 4	350					
376	Do.	Do.	No. 5, fall at 1 mile 1 furlong and 10 feet	560					
			VI. Branch Channel.						
377	(3) Distributaries.	Falls and weirs.	Two falls	1,280					
378	Do.	Do.	Fall	630					
379	Do.	Do.	Two falls	1,200					
380	Do.	Do.	Falls and sluice, combined at 600 feet	580	2,465	2,185	..		

381	(3) Distributaries.	Falls and weirs ..	No. 2 fall at 4 furlongs 160 feet	340				
382	Do.	Do. ..	No. 3 ,, at 6 ,, 340 ,, ...	340				
883	Do.	Do. ..	No. 4 ,, at 7 ,, 380 ,, ...	280				
			VII Branch Channel.					
384	(3) Distributaries.	Falls and weirs ..	Five falls	2,850	..	4,590	..	
385	Do.	Do. ..	Three falls	1,740				
			VIII Branch Channel.					
386	(3) Distributaries.	Falls and weirs ..	Five falls	3,400	2,687	5,063	..	
387	Do.	Do. ..	Four ,, ...	2,520				
388	Do.	Do. ..	Three ,, ...	1,830				
			IX Branch Channel.					
389	(3) Distributaries.	Falls and weirs ..	Three falls	1,020	20,304	16,346	..	G.O., No. 97 I., dated 3rd February 1894.
390	Do.	Do. ..	Eight ,, ...	5,360				
391	Do.	Do. ..	Fall	650				
392	Do.	Do. ..	Four falls	2,560				
393	Do.	Do. ..	Five ,, ...	3,050				
394	Do.	Do. ..	Fall No. 1 at 1 furlong 440 feet	1,860				
395	Do.	Do. ..	,, ,, 2 at 2 furlongs 180 feet	1,320				
396	Do.	Do. ..	,, ,, 3 at 3 ,, 120 ,, ...	1,360				
397	Do.	Do. ..	,, ,, 4 at 4 ,, 560 ,, ...	1,340				
398	Do.	Do. ..	,, ,, 5 at 1 mile 42 feet	1,930				
399	Do.	Do. ..	,, ,, 6 at 1 ,, 1 furlong 560 feet	1,000				
400	Do.	Do. ..	,, ,, 7 at 1 ,, 2 furlongs 600 ,, ...	950				
401	Do.	Do. ..	,, ,, 8 at 2 ,, 1 furlong 80 ,, ...	1,375				
402	Do.	Do. ..	,, ,, 9 at 5 ,, 2 furlongs 418 ,, ...	690				
403	Do.	Do. ..	,, ,, 10 and superpassage at 5 miles 3 furlongs 120 feet.	1,750				
404	Do.	Do. ..	Fall No. 11 at 5 miles 3 furlongs 580 feet	720				
405	Do.	Do. ..	,, ,, 12 at 5 ,, 5 ,, 238 ,, ...	715				
406	Do.	Do. ..	,, ,, 13 at 5 ,, 6 ,, 178 ,, ...	720				
407	Do.	Do. ..	,, ,, 14 at 7 ,, 395 feet	1,200				
408	Do.	Do. ..	,, ,, 15 at 8 ,, 315 ,, ...	1,200				
409	Do.	Do. ..	,, ,, 15	860				
410	Do.	Do. ..	No. 1 fall and 2 sluices to Chittampatti offtake ..	750				
411	Do.	Do. ..	,, 2 ,, 2 ,, at 1 furlong 540 feet	500				
412	Do.	Do. ..	,, 3 ,, 2 ,, at 2 miles 5 furlongs ..	600				
413	Do.	Do. ..	,, 1 ,, 2 ,, in Kunnathur offtake at 3 furlongs 260 feet.	610				
414	Do.	Do. ..	No. 2 fall at 4 furlongs 60 feet	500				
415	Do.	Do. ..	,, 3 ,, at 4 ,, 360 ,, ...	780				
416	Do.	Do. ..	,, 4 ,, at 5 ,, 350 ,, ...	640				
417	Do.	Do. ..	,, 5 ,, at 6 ,, 340 ,, ...	640				
			X. Branch Channel.					
418	(3) Distributaries.	Falls and weirs ..	Two falls	3,940				
419	Do.	Do. ..	Fall	1,960				
420	Do.	Do. ..	Two falls	3,040				
421	Do.	Do. ..	,, ...	1,740				
422	Do.	Do. ..	Fall	1,620				
423	Do.	Do. ..	,, ...	800				
424	Do.	Do. ..	Two falls	1,560				

Statement A.—Schedule of works carried out under the construction estimate showing expenditure to 31st March 1897, the date on which the construction estimate sanctioned by the Secretary of State was closed—*cont.*

Serial number.	Classification. Main head.	Classification. Sub-head.	Names of works.	Amount of estimate.	Expenditure to end of 31st March 1897.	Difference. Saving.	Difference. Excess.	Reference to order sanctioning the estimate.	Explanation of important variations between estimate and expenditure.
			49. IRRIGATION—*cont.*	RS.	RS.	RS.	RS.		
			X. Branch Channel—*cont.*						
425	(3) Distributaries.	Falls and weirs ..	Three falls	2,280					
426	Do.	Do. ..	Four ,, ...	3,000	21,047				
427	Do.	Do. ..	Two ,, ...	1,260					
428	Do.	Do. ..	,, ,, ...	1,200					
429	Do.	Do. ..	No. 1 fall with 2 sluices at 1 furlong 340 feet ..	1,200		6,543	..		
430	Do.	Do. ..	,, 2 ,, 2 ,, at 2 furlongs 180 ,, ..	870					
431	Do.	Do. ..	,, 3 ,, 2 ,, at 2 ,, 580 ,, ..	1,040					
432	Do.	Do. ..	,, 4 ,, 2 ,, at 4 ,, 260 ,, ..	1,040					
433	Do.	Do. ..	,, 5 ,, 2 ,, at 5 ,, 300 ,, ..	1,040					
			XI. Branch Channel.						
434	(3) Distributaries.	Falls and weirs ..	Fall	800					
435	Do.	Do. ..	Four falls	3,120	..	7,680	..		
436	Do.	Do. ..	Fall	760					
437	Do.	Do. ..	Four falls	3,000					
			XII. Branch Channel.						
438	(3) Distributaries.	Falls and weirs ..	Fall	2,040	..	5,240	..		
439	Do.	Do. ..	Four falls	3,200					
			I. Branch Channel.						
440	(3) Distributaries.	Other cross drainage works.	Superpassage below Sholavandan tank	1,220					
441	Do.	Do.	No. 1 culvert ,, ,, at 1 mile 32 feet..	1,000	2,643	977	..	G.O., No. 97 I., dated 3rd February 1894.	
442	Do.	Do.	Aqueduct ,, ,, ,, ..	1,400					
			II. Branch Channel.						
443	(3) Distributaries.	Other cross drainage works.	Culvert	752					
444	Do.	Do.	Culvert at left approach to road bridge at 4 furlongs 460 feet.	200	952	..	..		
			III. Branch Channel.						
445	(3) Distributaries.	Other cross drainage works.	Superpassage at 1 mile 3 furlongs 50 feet	1,003	1,889	..	886		
			V. Branch Channel.						
446	(3) Distributaries.	Other cross drainage works.	Aqueducts	..	561	..	561		
			IX. Branch Channel.						
447	(3) Distributaries.	Other cross drainage works.	Superpassage at 4 miles 7 furlongs 310 feet	1,700					
448	Do.	Do.	Culvert at 6 miles 1 furlong	1,050	6,505	..	1,505		
449	Do.	Do.	,, at 6 miles 3 furlongs 180 feet	1,050					
450	Do.	Do.	Superpassage	1,200					
			X. Branch Channel.						
451	(3) Distributaries.	Other cross drainage works.	19. Culverts	52,060	17,532	34,528	..		

			1st Branch Channel.					
452	(3) Distributaries.	Bridges ..	Road tunnel at 1 mile 5 furlongs 520 feet	400	365	35	..	
			2nd Branch Channel.					
453	(3) Distributaries.	Bridges ..	Road tunnel	415	645	..	..	
454	Do. ..	Do. ..	,, at 4 furlong, 460 feet	230				
			3rd Branch Channel.					
455	(3) Distributaries.	Bridges ..	Road tunnel	615	615	..	..	
			4th Branch Channel.					
456	(3) Distributaries.	Bridges ..	Road tunnel and fall	2,931	3,446	1,401	..	
457	Do. ..	Do. ..	Slab drain crossing Nattam road at 1 mile 4 furlongs 360 feet.	281				
458	Do. ..	Do. ..	Road tunnel at 15 miles 4 furlongs 360 feet	445				
459	Do. ..	Do. ..	,, at 2 miles 1 furlong 277 feet	360				
460	Do. ..	Do. ..	Road tunnel from the head of Thandalay offtake at 350 feet.	590				
461	Do. ..	Do. ..	Road culvert in minor distributary, Thandalay at 6 furlong 440 feet.	240				
			5th Branch Channel.					G.O., No. 97 I., dated 3rd February 1894.
462	(3) Distributaries.	Bridges ..	Bridge at 5 furlongs 450 feet	330	589	..	259	
			6th Branch Channel.					
463	(3) Distributaries.	Bridges ..	Slab drain crossing Nattam road	280	286	..	6	
			9th Branch Channel.					
464	(3) Distributaries.	Bridges ..	Two road tunnels	1,270	6,309	..	3,169	
465	Do. ..	Do. ..	Road culvert at 7 miles 4 furlongs 93 feet	740				
466	Do. ..	Do. ..	Do. at Chittamputty offtake at 2 miles 4 furlongs	530				
467	Do. ..	Do. ..	Road culvert at Kunnathore offtake	600				
			10th Branch Channel.					
468	(3) Distributaries.	Bridges ..	Road tunnel	1,270	3,022	..	1,752	
			11th Branch Channel.					
469	(3) Distributaries.	Bridges ..	Road tunnel	960	..	960	..	
			12th Branch Channel.					
470	(3) Distributaries.	Bridges ..	Road tunnel	1,270	..	3,020	..	
471	Do. ..	Do. ..	Do.	960				
472	Do. ..	Do. ..	Do.	790				
			1st Branch Channel.					
473	(3) Distributaries.	Buildings ..	Lump sum	1,600	..	1,600	..	
			9th Branch Channel.					
474	(3) Distributaries.	Buildings ..	New buildings at Chittampatti in the 9th branch channel.	3,400	1,050	2,350	..	
			1st Branch Channel.					
475	(3) Distributaries.	Earthwork ..	Earthwork	6,038	6,038	..	..	

Statement A.—Schedule of works carried out under the construction estimate showing expenditure to 31st March 1897, the date on which the construction estimate sanctioned by the Secretary of State was closed—*cont.*

Serial number.	Classification. Main head.	Classification. Sub-head.	Names of works.	Amount of estimate.	Expenditure to end of 31st March 1897.	Difference. Saving.	Difference. Excess.	Reference to order sanctioning the estimate.	Explanation of important variations between estimate and expenditure.
			49. IRRIGATION—*cont.*	RS.	RS.	RS.	RS.		
			2nd Branch Channel.						
476	(3) Distributaries.	Earthwork ..	Earthwork	4,435	4,435	..	..	G.O., No. 97, I., dated 3rd February 1894.	*Item* 483.—Excess due to alteration subsequently found necessary in the section and alignment of the channel. *Item* 484.—Excess due to alteration having had to be made in the designs of masonry works.
			3rd Branch Channel.						
477	(3) Distributaries.	Earthwork ..	Earthwork	8,335	8,345	..	10		
			4th Branch Channel.						
478	(3) Distributaries.	Earthwork ..	Earthwork	37,750	36,500	1,250	..		
			5th Branch Channel.						
479	(3) Distributaries.	Earthwork ..	Earthwork	10,565	8,479	2,086	..		
			6th Branch Channel.						
480	(3) Distributaries.	Earthwork ..	Earthwork	6,745	6,874	..	129		
			7th Branch Channel.						
481	(3) Distributaries.	Earthwork ..	Earthwork	1,460	345	1,115	..		
			8th Branch Channel.						
482	(3) Distributaries.	Earthwork ..	Earthwork	7,090	6,050	1,040	..		
			9th Branch Channel.						
483	(3) Distributaries.	Earthwork ..	Earthwork	56,640	76,698	..	20,058		
			10th Branch Channel.						
484	(3) Distributaries.	Earthwork ..	Earthwork	66,225	87,266	..	21,041		
			11th Branch Channel.						
485	(3) Distributaries.	Earthwork ..	Earthwork	13,150	914	12,236	..		
			12th Branch Channel.						
486	(3) Distributaries.	Earthwork ..	Earthwork	54,220	9,563	44,657	..		
			1st Branch Channel.						
487	(3) Distributaries.	Miscellaneous ..	Sluices	..	473	..	473		
			2nd Branch Channel.						
488	(3) Distributaries.	Miscellaneous ..	Sluices	..	465	..	465		
			3rd Branch Channel.						
489	(3) Distributaries.	Miscellaneous ..	3 Sluices	990	..	3,490	..		
490	Do. ..	Do. ..	4 "	1,280					
491	Do. ..	Do. ..	3 "	620					
492	Do. ..	Do. ..	2 "	600					

			4th Branch Channel.					
493	(3) Distributaries.	Miscellaneous	14 sluices	4,620	7,060	3,997	..	G.O., No. 97 I. dated 3rd February 1894.
494	Do.	Do.	6 ,,	1,920				
495	Do.	Do.	4 ,,	1,240				
496	Do.	Do.	2 ,,	600				
497	Do.	Do.	2 ,,	450				
498	Do.	Do.	4 ,,	1,320				
499	Do.	Do.	2 ,,	640				
500	Do.	Do.	2 ,,	267				
			5th Branch Channel.					
501	(3) Distributaries.	Miscellaneous	4 sluices	1,320	720	2,530	..	
502	Do.	Do.	3 ,,	960				
503	Do.	Do.	Sluice	310				
504	Do.	Do.	2 sluices	660				
			6th Branch Channel.					
505	(3) Distributaries.	Miscellaneous	2 sluices	660	1,040	890	..	
506	Do.	Do.	3 ,,	960				
507	Do.	Do.	Sluice	310				
			7th Branch Channel.					
508	(3) Distributaries.	Miscellaneous	2 sluices	660	..	1,280	..	
509	Do.	Do.	2 ,,	620				
			8th Branch Channel.					
510	(3) Distributaries.	Miscellaneous	3 sluices	990	130	1,800	..	
511	Do.	Do.	Sluices	320				
512	Do.	Do.	,,	620				
			9th Branch Channel.					
513	(3) Distributaries.	Miscellaneous	13 sluices	4,160	5,764	7,675	..	
514	Do.	Do.	3 ,,	930				
515	Do.	Do.	4 ,,	1,200				
516	Do.	Do.	2 ,,	880				
517	Do.	Do.	11 ,,	3,630				
518	Do.	Do.	Sluice at 3 miles	300				
519	Do.	Do.	,, 4 ,,	440				
520	Do.	Do.	,, 4 miles 2 furlongs	320				
521	Do.	Do.	,, 5 ,,	360				
522	Do.	Do.	,, 6 ,,	340				
523	Do.	Do.	2 sluices	880				
			10th Branch Channel.					
524	(3) Distributaries.	Miscellaneous	8 sluices	3,520	3,246	8,314	..	
525	Do.	Do.	9 ,,	2,970				
526	Do.	Do.	11 ,,	3,620				
527	Do.	Do.	5 ,,	1,550				
			11th Branch Channel.					
528	(3) Distributaries.	Miscellaneous	10 sluices	3,200	..	3,810	..	
529	Do.	Do.	Sluice	310				
530	Do.	Do.	,,	300				

Statement A.—Schedule of works carried out under the construction estimate showing expenditure to 31st March 1897, the date on which the construction estimate sanctioned by the Secretary of State was closed—*cont.*

Serial number.	Classification. Main head.	Classification. Sub-head.	Names of works.	Amount of estimate.	Expenditure to end of 31st March 1897.	Difference. Saving.	Difference. Excess.	Reference to order sanctioning the estimate.	Explanation of important variations between estimate and expenditure.
			49. IRRIGATION—*cont.*						
			12th Branch Channel.						
531	(3) Distributaries.	Miscellaneous ..	2 sluices	880					
532	Do. ..	Do. ..	16 ,, ...	5,280					
533	Do. ..	Do. ..	5 ,, ...	1,600	..	9,930	..		
534	Do. ..	Do. ..	7 ,, ...	2,170					
			General.						
535	(3) Distributaries.	Maintenance ..	Lump sum	37,736	13,722	24,014	..		
			2nd Branch Channel.						
536	(3) Distributaries.	Maintenance ..	Maintaining	75	75	..	..		
			3rd Branch Channel.						
537	(3) Distributaries.	Maintenance ..	Maintaining	138					
538	Do. ..	Do. ..	,, ...	144					
539	Do. ..	Do. ..	,, ...	200	1,072	..	160	G.O., No. 97 I., dated 3rd February 1894.	
540	Do. ..	Do. ..	Excavating catch drain from superpassage 1 mile 4 furlongs to 2 miles 4 furlongs and closing breaches.	430					
			4th Branch Channel.						
541	(3) Distributaries.	Maintenance ..	Maintaining	320					
542	Do. ..	Do. ..	,, ...	397	2,029	..	847		
543	Do. ..	Do. ..	,, ...	465					
			5th Branch Channel.						
544	(3) Distributaries.	Maintenance ..	Maintaining	95	103	8	..		
545	Do. ..	Do. ..	Unforeseen works	3,844	4,855	..	1,011		
			Total (3) Distributaries ..	7,15,000	4,99,024	2,15,976	..		
			Total I Works ..	63,26,000	60,69,752	2,56,248	..		
			II Establishment ..	14,01,000	13,46,177				
			III Tools and Plant ..	7,57,000	7,28,291				
			Less receipts on Capital Account ..	— 13,000	— 14,203				
			Total ..	84,71,000	81,30,017				

or Rs 3,40,983 less than the sanctioned estimate

PERIYAR PROJECT.

STATEMENT B.—Schedule of works sanctioned but not completed before 31st March 1897, being the date on which General estimate of the Periyár Project was closed.

Item number in the schedule printed with G.O., No. 97 I., dated 3rd February 1894.	Classification of main and sub-heads.	Names of works.	Amount sanctioned in G.O., No. 97 I., dated 3rd February 1894. Amount.	Sanctioned register number.	Expenditure to end of 31st March 1897.	Further expenditure.	Probable dates of completion.
1	2	3	4	5	6	7	8
		HEAD WORKS.					
		Periyár valley.	RS.		RS.	RS.	
3	Works	Main dam	24,60,000	G.O., No. 97 I., dated 3rd February 1897.	21,18,298	41,702	
		Tools and Plant.					
..	Tools and plant ..	Conveying surplus stores from Thekady to Madras	10,000	No. 8 of 1896-97	21,275	1,031	
		MAIN CANALS AND BRANCHES.					
		Remunerative.					
212	Miscellaneous ..	Demarcating the line of main and branch channels ..	6,300	No. 43 of 1891-92 ..	5,433	867	
218	Do.	Fixing enamelled iron gauges at the regulator of main channel ..	1,030	No. 137 of 1896-97 ..	246	784	
..	Maintenance	Providing mile and furlong stones for main channel I to VI reaches.	460	No. 96 of 1895-96 ..	399	77	
..	Do.	Rectifying and repairing the screw gearing shutters of irrigation sluices in the Periyar main channel.	160	No. 68 of 1895-96 ..	116	44	
		I. Reach.					
197	Earthwork	Constructing a distributary and field channel from the irrigation sluice at 2 miles 2 furlongs 300 feet of main channel.	1,550	No. 51 of 1896-97 ..	608	942	
..	Do.	Excavating distributary channel from 5 miles 4 furlongs 300 feet of main channel.	630	No. 100 of 1896-97 ..	434	246	
..	Do.	Widening the river Vaigai in front of Peranai head sluice ..	1,840	No. 136 of 1896-97 ..	..	1,840	
..	Do.	Excavating a run-off channel ..	620	No. 90 of 1895-96 ..	1,210	24	
59	Other cross drainage works.	Excavating a distributary channel from Natchikulam weir ..	2,170	No. 131 of 1896-97 ..	1,330	840	Since completed.
..	Do ..	Inlet at 2 miles 5 furlongs 400 feet	1,370	No. 37 of 1895-96 ..	1,358	70	
..	Do. ..	Inlet at 3 miles 2 furlongs 440 feet	1,370	No. 38 of 1895-96 ..	1,238	29	
..	Do. ..	Inlet at 1 mile	1,350	No. 89 of 1895-96 ..	715	714	
70	Do. ..	Repairing Ramarajapuram	3,480	No. 61 of 1895-96 ..	3,365	115	
..	Land	Culvert at 5 miles 4 furlongs	490	No. 112 of 1896-97 ..	..	490	
		Compensation for land for Periyar main channel	18,191	G.O., No. 97 I., dated 3rd February 1894.	19,689		
		II. Reach.					
200	Earthwork	Distributary channel from the irrigation sluice, 9 miles 3 furlongs ..	1,060	No. 71 of 1896-97 ..	463	597	
		III. Reach.					
36	Regulators	Irrigation sluice at 11 miles 5 furlongs ..	1,650	No. 68 of 1891-92 ..	1,467	183	
201	Earthwork	Distributary and field channel from the irrigation sluice at 15 miles ..	2,300	No. 121 of 1896-97 ..	415	1,885	
..	Do.	Distributary channel from the irrigation sluice at 16 miles 6 furlongs.	870	No. 110 of 1896-97 ..	126	744	
201	Do.	Excavating a supply channel to inam Sambaikulam tank from Ellakathi odai at 14 miles 2 furlongs.	740	No. 109 of 1896-97 ..	96	644	
..	Do.	Deepening catch drain and the run-off channel of aqueduct at 14/2 miles.	250	No. 74 of 1894-95 ..	145	105	
..	Land	Compensation for land	19,396	No. 130 of 1892-93 ..	19,549	73	In progress.

Statement B.—Schedule of works sanctioned but not completed before 31st March 1897 being the date on which General estimate of the Periyár Project was closed—*cont.*

Item number in the schedule printed with G.O., No. 97 I., dated 3rd February 1894.	Classification of main and sub-heads.	Names of works.	Amount sanctioned in G.O., No. 97 I., dated 3rd February 1894. Amount.	Sanctioned register number.	Expenditure to end of 31st March 1897.	Further expenditure.	Probable dates of completion.
1	2	3	4	5	6	7	8
		MAIN CANALS AND BRANCHES—*cont.*	RS.		RS.	RS.	
		IV. Reach.					
208	Earthwork	Cutting an irrigation channel along outer toe of right bank of main channel.	75	No. 45 of 1895-96	43	32	
		V. Reach.					
13	Land	Compensation for land	9,501	G.O., No. 97 I., dated 3rd February 1894.	9,463	309	
		VI. Reach.					
..	Miscellaneous	Constructing an irrigation sluice at 22 miles along Vadakulam ..	530	No. 66 of 1896-97	447	135	
		VII. Reach.					
..	Miscellaneous	Irrigation sluice at 25 miles 1 furlong 50 feet	560	No. 14 of 1896-97	543	33	
206	Earthwork	Excavating a run-off channel in rear of Sandi odai culvert ..	1,800	C.E., No. VI/118 M.D., dated 2nd November 1897.	426	1,374	
		X. Reach.					
209	Earthwork	Closing breaches in the left bank of the main channel at 29/3 miles.	25	No. 108 of 1896-97	..	13	
..	Do.	Clearing silt in Karungudi odai culvert	90	No. 95 of 1896-97	36	45	
		XI. Reach.					
210	Earthwork	Excavation of main channel	61,000	No. 16 of 1896-97 and G.O., No. 356 I., dated 22nd April 1896.	65,395	172	
143	Other cross drainage works	Iron trough at peg No. 225	500	No. 171 of 1893-94	194	306	
..	Miscellaneous	Pipe culvert at 30 miles 6 furlongs 100 feet	470	No. 49 of 1895-96	..	470	
19	Land	Compensation for land	5,854	G.O., No. 97 I., dated 3rd February 1894.	4,632	1,894	
..	Do.	Do. for Periyar main channel	270	No. 140 of 1896-97 ..	..	270	
		XII. Reach.					
20	Land	Compensation for land	500	G.O., No. 97 I., dated 3rd February 1894.	..	500	
		Total (2) Main Canal and Branches ..	..	....	..	16,776	
		DISTRIBUTARIES.					
		General.					
326	Preliminary	Aligning and lockspitting the distributary channel	1,000	No. 6 of 1896-97	850	388	Since completed.
..	Miscellaneous	Rectifying and repairing the screw gearing shutters	150	No. 69 of 1895-96	9	150	
..	Do.	Fixing enamelled iron gauges to the Periyar branch channel ..	1,300	No. 138 of 1896-97 ..	..	1,300	
		I. Branch Channel.					
523	Other cross drainage works	No. 1 culvert at 56 peg below Sholavandan tank	1,000	No. 105 of 1892-93 ..	718	282	
	Miscellaneous	Restoring 1st branch channel below Vadagarai tankbund	1,580	No. 55 of 1896-97	..	1,580	

..	Do.	Excavating field channel from drop No. 4 to Nedunkulam tank	65	No. 139 of 1896–97	..	65	
..	Regulators	Constructing head sluice to Vadagarai tank bund	1,960	No. 54 of 1895–96	..	1,960	
		II. Branch Channel.					
564	Earthwork	Excavating irrigation channel from sluice No 3.	1,160	No. 107 of 1896–97	292	868	
..	Do.	Constructing earthernware pipe sluice at A and B and excavating field channel.	430	No. 79 of 1896–97	173	257	
		III. Branch Channel.					
335	Land	Compensation for land	3,150	G.O., No. 97 I., dated 3rd February 1894.	2,714	436	
		IV. Branch Channel.					
336	Land	Compensation for land	8,100	G.O., No. 97 I., dated 3rd February 1894.	4,914	2,047	
..	Miscellaneous	Proposed ramp at 1 mile 1 furlong	90	No. 112 of 1895–96	..	90	
..	Do.	Culvert at 3 miles 6 furlongs	1,470	No. 46 of 1896–97	879	591	
566	Earthwork	Excavating a distributary channel from sluice at 5 furlongs	1,460	No. 130 of 1896–97	2,259	675	
..	Do.	Araiyur distributary at 3 miles, 7½ furlongs of Thandalai offtake.	4,000	No. 56 of 1896–97	2,017	2,137	
..	Do.	Distributary to Puthumboo west tank 3 miles 1 furlong	3,450	No. 87 of 1896–97	766	2,684	
..	Do.	,, ,, to east tank 3 miles 1 furlong	1,170	No. 88 of 1896–97	381	789	
..	Do.	Excavating a distributary of the Thandalai offtake	1,680	No. 73 of 1896–97	1,483	584	
..	Do.	,, distributary and field channels	1,910	No. 68 of 1896–97	820	1,220	
..	Do.	Distributaries of Thandalai offtake	640	No. 101 of 1896–97	..	640	
		Excavating a field channel from the left sluice drop No. 9.	155	No. 114 of 1896–97	64	65	
		V. Branch Channel.					
..	Falls and weirs	No. 8 fall at 2 miles	670	G.O., No. 97 I., dated 3rd February 1894.	442	228	Completed.
442	Do.	No. 11 fall at 3 miles 2 furlongs	610	Do. do.	248	362	Since completed.
..	Do.	No. 14 fall	610	Do. do.	61	549	
594	Miscellaneous	Sluices attached to the V Branch channel					
..	Do.	Sluices at Periyakulam tank at No. 8 fall	330	Do. do.	83	247	
..	Do.	Sluices attached to No. 13 fall at 3 miles 7 furlongs					
567	Do.	Diversion of surplus channel at 4 miles 8 furlongs 200 feet					
567	Earthwork	Excavation of V Branch channel	110	No. 96 of 1896–97	..	110	
337	Land	Compensation for land	10,665	G.O., No. 97 I., dated 3rd February 1894.	8,479	2,186	
		VI. Branch Channel.					
338	Land	Compensation for land	2,525	Do. do.	907	1,618	
568	Earthwork	Excavating main, branch and field channels from the right and left sluices above the drop at 2 miles 1 furlong.	1,221	G.O., No. 97 I., dated 3rd February 1894.	971	250	
..	Do.	Excavating distributary and field channel from right and left sluices of drop No. 1.	380	No. 105 of 1896–97	138	242	
..	Do.	Excavating main, branch and field channels above drop at ¼	1,980	No. 102 of 1896–97	303	1,677	
..	Do.	Distributary channel from drop at 1 mile 2 furlongs	410	No. 104 of 1896–97	127	283	
			1,100	No. 103 of 1896–97	..	1,100	
		VIII. Branch Channel.					
570	Earthwork	Excavation of VIII Branch channel	7,090	G.O., No. 97 I., dated 3rd February 1894.	6,051	1,039	
..	Do.	Excavating a field channel from the left sluice of drop No. 1.	340	No. 143 of 1896–97	..	340	

Statement B.—Schedule of works sanctioned but not completed before 31st March 1897 being the date on which General estimate of the Periyár Project was closed—*cont.*

Item number in the schedule printed with G.O., No. 97 I., dated 3rd February 1894.	Classification of main and sub-heads.	Names of works.	Amount sanctioned in G.O., No. 97 I., dated 3rd February 1894. Amount.	Sanctioned register number.	Expenditure to end of 31st March 1897.	Further expenditure.	Probable dates of completion.
1	2	3	4	5	6	7	8
		DISTRIBUTARIES—*cont.*					
		IX. Branch Channel.	RS.		RS.	RS.	
341	Land	Compensation for land	12,950	G.O., No. 97 I., dated 3rd February 1894.	4,270	8,680	
571	Earthwork	Excavation of IX Branch channel	77,000	G.O., No. 362 I., 24th April 1896.	76,698	302	
..	Do.	Excavating field channels from sluices in drop No. 1.	500	No. 69 of 1896-97	239	261	
..	Do.	Excavating field channels from sluices in drop No. 5	170	No 70 of 1896-97	50	120	
..	Do.	Excavating distributary and field channel from sluice at 5 miles ..	3,480	No. 128 of 1896-97	1,460	2,020	
..	Miscellaneous	Constructing slab drain at 2 miles 3 furlongs	320	No. 108 of 1895-96	261	59	
532	Other cross Drainage works.	,, syphon culvert at 5 miles 7 furlongs	590	No. 111 of 1896-97	..	590	
..	Do. ..	,, a masonry culvert at 5 miles 4 furlongs	490	No. 112 of 1896-97	..	490	
538	Do. ..	Superpassage and bridge combined at 6 miles 5 furlongs 320 feet	440	No. 13 of 1896-97	..	440	
		Chittampatty offtake.					
571	Earthwork	Excavating a field channel from the proposed irrigation sluice 2nd mile.	270	No. 72 of 1896-97	193	77	
..	Do.	Excavating distributary and field channel from left sluice of drop No. 9.	1,200	No. 99 of 1896-97	553	647	
..	Do.	Excavating distributary and fied channel from right sluice of drop No. 9.	850	No. 97 of 1896-97	433	417	
..	Do.	Field channel from proposed sluice at 3 miles 3 furlongs	120	No. 98 of 1896-97	58	62	
		Kunnathur offtake.					
..	Do.	Excavating distributary channel from drop No. 1	2,860	No. 85 of 1896-97	1,500	1,360	
..	Do.	,, supply channel to Tindiyur Konmoy from right sluice of drop No. 9.	260	No. 133 of 1896-97	..	260	
571	Do.	Excavating field channel from left sluice of drop No. 1.	1,000	No. 86 of 1896-97	765	235	
..	Miscellaneous	No. 6 fall and road bridge at 7 furlongs 500 feet	600	No. 112 of 1893-94	350	250	
..	Do.	Bridging the falls and its offtakes	300	No. 44 of 1896-97	96	241	
..	Do.	Aqueduct at 1 mile 4 furlongs 180 feet	2,570	No. 127 of 1896-97	..	2,570	
..	Do.	Sluice at 3 miles 3 furlongs and distributary and field channel in the same.	1,585	No. 83 of 1897-98	766	819	
		X. Branch Channel.					
342	Land	Compensation for land	12,075	G.O., No. 97 I., dated 3rd February 1894.	8,044	1,000	
572	Earthwork	Excavation of X Branch channel	95,890	G.O., No. 399 I., dated 5th April 1897.	87,266	8,624	
532	Other cross drainage works.	No. 2 masonry trough on No. 2-A superpassage	1,450	No. 7 of 1896-97	..	1,450	
..	Do. ..	No. 1-A superpassage at 2 miles 3 furlongs 110 feet	1,340	No. 95 of 1894-95	1,387	350	
537	Miscellaneous	Closing breaches between 2nd and 3rd mile	1,000	No. 113 of 1896-97	..	1,000	
		Tiruvadur offtake.					
537	Other cross drainage works.	Constructing a masonry culvert at 3 miles 406 feet	230	No. 114 of 1895-96	..	230	
..	Do. ..	Pipe culvert at 3 furlongs and 520 feet	160	No. 132 of 1896-97	..	160	Since completed.

..	Miscellaneous ..	.. Providing a covering slab over fall Nos. 6 and 7	56	No. 53 of 1896-97	..	56	
..	Falls and weirs	.. No. 11 fall at 3 miles 7 furlongs 40 feet ..	440	No. 94 of 1894-95	237	203	
372	Regulators ..	.. Bridge and regulator combined at Tiruvadur offtake	{ 870 1,160 }	No. 10 of 1896-97	{ 1,224 1,036 }	400	
		Chunnambore offtake.					
370	Do. ..	.. Head sluice Chunnambore offtake	860	No. 113 of 1894-95 ..	600	260	
500 to 511	Falls and weirs	.. No. 1 fall at 500 feet	530	No. 39 of 1895-96 ..	..	530	
..	Do.	.. ,, 2 ,, 4 furlongs 460 feet	440	No. 40 of 1895-96 ..	..	440	
..	Do.	.. ,, 3 fall and road bridge at 2 miles 4 furlongs 620 feet	630	No. 30 of 1895-96 ..	420	210	
..	Do.	.. ,, 4 fall at 3 miles 1 furlong 600 feet	440	No. 41 of 1895-96 ..	260	180	
..	Do.	.. ,, 5 ,, 4 ,, 2 ,, 60 ,,	480	No. 42 of 1895-96 ..	300	180	
..	Do.	.. ,, 6 ,, 6 ,, 2 ,, 240 ,,	520	No. 43 of 1895-96 ..	..	520	
..	Do.	.. ,, 7 ,, 6 ,, 8 ,, 240 ,,	730	No. 44 of 1895-96 ..	128	602	
..	Do.	.. Fall No. 5-A at 5 miles 1 furlong 440 feet	440	No. 88 of 1895-96 ..	319	121	
		XI. Branch Channel.					
343	Land ..	.. Compensation for land	3,150	G.O., No. 97 I., dated 3rd February 1894.	2,379	771	
..	Regulators ..	.. Bridge and regulator combined at the head of XI and XII branch channels.	3,040	No. 9 of 1896-97	1	3,039	
573	Earthwork ..	.. Excavation of XI branch channel	24,630	G.O., No. 406 I., dated 28th April 1897.	914	23,716	
		XII. Branch Channel.					
574	Earthwork ..	.. Excavation of XII branch channel	70,500	G.O., No. 318 I., dated 25th March 1897.	9,563	60,937	
..	Do. ..	.. No. 1 distributary at 4,700 feet	2,080	No. 118 of 1896-97 ..	..	2,080	
..	Do. ..	.. ,, 2 ,, at 1 mile 1,620 feet	280	No. 119 of 1896-97 ..	..	280	
		Total (3) Distributary ..	..		..	1,56,051	
		Unremunerative.					
11	Do. ..	.. Improvements to stables at Thekady	400	No. 89 of 1895-96 ..	776	26	
..	Do. ..	.. Repairs to lascar's shed at Ramarajapuram	60	No. 5 of 1895-96 ..	13	47	
..	Do. ..	.. Repairing the inspection shed at Peranai	100	No. 97 of 1895-96 ..	..	100	
..	Do. ..	.. Repairing rest-house at Peranai	64	No. 104 of 1895-96 ..	25	39	
..	Do. ..	.. Repairs to the lascar's shed at regulator II Reach	470	No. 66 of 1894-95 ..	310	204	
..	Do. ..	.. Constructing lascar's shed at Kallandry	450	No. 120 of 1896-97 ..	..	450	
..	Do. ..	.. Repairing Kallandry rest-house	44	No. 93 of 1896-97 ..	..	44	
..	Do. ..	.. Out-houses to rest-houses at Pallipatty	700	No. 145 of 1893-94 ..	740	..	
..	Do. ..	.. Rest-house at Chattamputty	3,150	No. 97 of 1895-96 ..	1,050	2,988	
..	Bridges ..	.. Bridge across Periyar main channel near Thathampatty	{ 1,540 — 450 }	No. 83 of 1896-97 ..	..	1,090	
..	Land ..	.. Acquiring lands for Chettampatty rest-house	10	No. 35 of 1896-97 ..	..	10	
..	Miscellaneous ..	.. Planting Athalai along Periyár main channel	917	No. 116 of 1896-97 ..	556	361	In progress.
..	Do. ..	.. Athalai plantations for demarcating Periyár	1,250	No. 117 of 1896-97 ..	564	801	
..	Do. ..	.. Purchase of bull-eye lantern for Ramarajapuram surplus sluice	10	No. 36 of 1896-97 ..	..	10	Since completed.
..	Do. ..	.. Digging left bank trenches around building at Thekady	1,250	No. 79 of 1895-96 ..	684	98	
..	Do. ..	.. Inspection shed at Kurnvathi	130	No. 84 of 1896-97 ..	10	128	
..	....	Repairs to Peranai anicut	1,660	No. 50 of 1895-96 ..	..	1,814	
			..	..	..	8,210	
		Grand Total for Works ..	..	..	..	* 2,22,739	* Includes Rupees 17,768 for land.
		Establishment ..	..	..	..	47,143	
		Tools and Plant ..	..	..	..	† 1,118	† Added Rs. 87 to make the total a round sum.
		Total ..	..	..	..	2,71,000	

PERIYÁR PROJECT.

C.—STATEMENT showing the estimates sanctioned under Open Capital Account.

Sanctioning authority.	Names of works.	Sanctioned estimate including establishment and tools and plant charges.			Date of expiry of sanction.
		Class I (unremunerative).	Class II (remunerative).	Total.	
1	2	3	4	5	6
	I. Reach.	RS.	RS.	RS.	
G.Os., No. 836 I., dated 28th Oct. 1898 and No. 829 I., dated 2nd Oct. 1900.	Constructing a bridge at 5 miles 1 furlong, main channel.	2,860	..	2,860	Rs. 1,515, 31st March 1901.
G.O., No. 707 I., dated 23rd Aug. 1900.	Improving and fitting falling shutters to the Peranai anicut.	..	13,450	13,450	31st March 1901.
	VI. Reach.				
G.Os., No. 1013 I., dated 13th Nov. 1897 and No. 873 I., dated 17th Oct. 1899.	Excavating distributary taking off the sluices on the right bank of the main channel at 22 miles.	..	3,600	3,600	Rs. 3,772, 31st March 1900.
	XI. Reach.				
G.Os., No. 1104 I., dated 9th Dec. 1897; No. 873 I., dated 17th Oct. 1899 and No. 829 I., dated 2nd Oct. 1900.	Constructing a sluice and distributary channel at 30 miles 6 furlongs and 100 feet.	..	7,000	7,000	31st March 1901.
	1st Branch Channel.				
G.Os., No. 876 I., dated 10th Nov. 1898 and No. 829 I., dated 12th Oct. 1900.	Excavating distributary and field channel from Thodaneri tank.	..	2,160	2,160	31st March 1901.
G.O., No. 255 I., dated 12th March 1901.	Regrading the first branch channel below drop No. 3 supplying Vadagarai tank.	3,150	..	3,150	31st March 1902.
	3rd Branch Channel.				
G.Os., No. 842 I., dated 24th Sept. 1897 and No. 829 I., dated 2nd Oct. 1900.	Constructing cross drainage works.	3,000	..	3,000	Rs. 3,121, 31st March 1901.
G.Os., No. 713 I., dated 17th Sept. 1898 and No. 829 I., dated 2nd Oct. 1900.	Excavating field channel from the proposed sluice in Velangudi tank.	..	1,200	1,200	Rs. 1,237, 31st March 1901.
G.Os., No. 539 I., dated 26th June 1899 and No. 829 I., dated 2nd Oct. 1900.	Excavating a distributary and field channel from head sluice in Athalai tank.	..	1,450	1,450	Rs. 1,650, 31st March 1901.
G.Os., No. 69 I., dated 11th Jan. 1899 and No. 873 I., dated 17th Oct. 1899.	Constructing a surplus weir at left flank of Athalai tank.	2,700	..	2,700	Rs. 2,659, 31st March 1900.
	4th Branch Channel.				
G.O., No. 573 I., dated 2nd July 1900.	Banking the Tandalai offtake through the Thandalai tank.	..	7,250	7,250	Rs. 7,210, 31st March 1901.
G.Os., No. 207 I., dated 28th Feb. 1899 and No. 829 I., dated 2nd Oct. 1900.	Excavating tail end	..	2,920	2,920	Rs. 3,511, 31st March 1901.
G.Os., No. 284 I., dated 18th March 1899 and No. 829 I., dated 2nd Oct. 1900.	Excavating the extension of Thirupalai offtake.	..	5,420	5,420	Rs. 5,519, 31st March 1901.
G.Os., No. 501 I., dated 30th Jan. 1898; No. 207 I., dated 28th March 1899 and No. 829 I., dated 2nd Oct. 1900.	Excavating distributary channel from the tail end of the 4th Branch channel to Kovilpapagudi tank.	..	2,975	2,975	Rs. 4,052, 31st March 1901.
G.Os., No. 630 I., dated 24th July 1899 and No. 829 I., dated 2nd Oct. 1900.	Regulating the 4th Branch channel and Thandalai offtake.	..	1,300	1,300	Rs. 1,624, 31st March 1901.
G.Os., No. 946 I., dated 3rd Nov. 1899 and No. 829 I., dated 2nd Oct. 1900.	Excavating field channel from sluice No. 2 in Boothagudi tank, Thandalai offtake.	..	1,520	1,520	31st March 1901.
	5th Branch Channel.				
G.Os., No. 385 I., dated 10th May 1898 and No. 873 I., dated 17th Oct. 1899.	Regrading 5th Branch channel and constructing cross drainage works in the same.	..	7,750	7,750	Rs. 8,118, 31st March 1900.

C.—Statement showing the estimates sanctioned under Open Capital Account—*cont.*

Sanctioning authority.	Names of works.	Sanctioned estimate including establishment and tools and plant charges.			Date of expiry of sanction.
		Class I (unremunerative).	Class II (remunerative).	Total.	
1	2	3	4	5	6
	8th Branch Channel.	RS.	RS.	RS.	
G.Os., No. 533 I., dated 26th June 1899 and No. 829 I., dated 2nd Oct. 1900.	Regrading 8th branch channel and constructing cross drainage works in the same.	..	7,130	7,130	Rs. 7,117, 31st March 1901.
	9th Branch Channel.				
G.Os., No. 298 I., dated 6th April 1898 and No. 873 I., dated 17th Oct. 1899.	Excavating distributary and field channel from the right sluice of drop No. 14.	..	2,020	2,020	Rs. 2,206, 31st March 1900.
G.Os., No. 910 I., dated 24th Oct. 1897; No. 873 I., dated 17th Oct. 1899 and No. 914 I., dated 31st Oct. 1900.	Excavating distributary channel from the left sluice of drop No. 8, Kunnathur offtake.	..	2,538	2,538	Rs. 2,532, 31st March 1900.
G.Os., No. 942 I., dated 21st Oct. 1897 and No. 873 I., dated 17th Oct. 1899.	Constructing an irrigation sluice at 3 miles 3 furlongs and excavating distributary and field channels from the same.	..	1,930	1,930	Rs. 1,823, 31st March 1900.
G.Os., No. 994 I., dated 10th Nov 1897; No. 873 I., dated 17th Oct. 1899 and No. 395 I., dated 25th April 1900.	Excavating field channels from the proposed pipe and masonry sluices in the Kunnathur offtake.	..	1,735	1,735	Rs. 1,761, 31st March 1900.
G.O., No. 26 I., dated 16th Jan. 1900.	Excavating field channels and constructing pipe sluices in the 9th branch channel and Chittampatti offtake.	..	2,950	2,950	Rs. 2,971, 31st March 1901.
G.Os., No. 199 I., dated 24th Feb. 1899; No. 873 I., dated 17th Oct. 1899 and No. 8 I., dated 7th Jan. 1901.	Excavating distributary at 1 mile 6 furlongs and 500 feet, Kunnathur offtake.	..	1,949	1,949	Rs. 1,942, 31st March 1901.
G.O., No. 721 I., dated 18th Aug. 1899.	Constructing a two-feet drop at 3 miles 1 furlong and raising banks above the same.	..	2,940	2,940	Rs. 2,562, 31st March 1901.
G.Os, No. 586 I., dated 29th July 1898; No. 389 I., dated 20th April 1900 and No. 914 I., dated 31st Oct. 1900.	Excavating distributary and field channels from left sluice of drop No. 14.	..	6,019	6,019	Rs. 5,971, 31st March 1900.
G.O., No. 389 I., dated 11th May 1898.	Excavating tail end of Chittampatty offtake and field channel.	..	1,300	1,300	Rs. 1,476, 31st March 1900.
G.Os., No. 586 I., dated 29th July 1898 and No. 829 I., dated 2nd Oct. 1900.	Excavating the tail end channel of Papagudi offtake and constructing masonry works.	..	10,630	10,630	31st March 1901.
G.Os, No. 561 I., dated 22nd July 1898 and No. 829 I., dated 2nd Oct. 1900.	Improvements to Tirukkani tank..	..	1,550	1,550	Do.
G.O., No. 117 I., dated 5th Feb. 1901.	Improving Kunnathur tank and channel.	..	7,450	7,450	31st March 1902.
G.O., No. 309 I., dated 26th March 1901.	Improving Chittampatti offtake which takes off from the 9th branch channel.	..	3,380	3,380	Do.
	10th Branch Channel.				
G.Os., No. 188 I., dated 22nd Feb. 1899 and No. 829 I., dated 2nd Oct. 1900.	Distributary channel from 6 miles 4 furlongs and 80 feet in Chunambur offtake to Keeranur tank.	..	8,650	8,650	Rs. 6,923, 31st March 1901.
G.Os., No. 563 I., dated 22nd July 1898 and No. 829 I., dated 2nd Oct. 1900.	Excavating a distributary channel from the left bank of the 10th branch channel to Aruttapatty tank.	..	2,730	2,730	Rs. 2,525, 31st March 1901.
G.Os., No. 636 I., dated 22nd Aug. 1898 and No. 873 I., dated 17th Oct. 1899.	Distributary channel from 5 miles 7 furlongs in the left side of the Chunambur offtake.	..	1,760	1,760	Rs. 1,584, 31st March 1900.
G.Os., No. 878 I., dated 10th Oct. 1898 and No. 873 I., dated 17th Oct. 1899.	Constructing cross drainage works in the Chunambur offtake taking off the 10th branch channel.	..	2,150	2,150	Rs. 1,980, 31st March 1900.
G.O., No. 917 I., dated 25th Oct. 1899.	Improving the Chunambur offtake from drop No. 2 to drop No. 3.	3,450	..	3,450	31st March 1901.

C.—Statement showing the estimates sanctioned under Open Capital Account—*cont.*

Sanctioning authority.	Names of works.	Sanctioned estimate including establishment and tools and plant charges.			Date of expiry of sanction.
		Class I (unremunerative.)	Class II (remunerative.)	Total.	
1	2	3	4	5	6
	10th Branch Channel—cont.	RS.	RS.	RS.	
G.O., No. 615 I., dated 27th Aug. 1900.	Constructing sluices and excavating field channels in Chunambur off-take.	..	3,440	3,440	31st March 1901.
	11th Branch Channel.				
G.O., No. 921 I., dated 26th Oct. 1899.	Excavating field channels ..	..	3,600	3,600	31st March 1901.
	12th Branch Channel.				
G.Os., No. 788 I., dated 26th Aug. 1897 and No. 873 I., dated 17th Oct. 1899.	Excavating No. 3 distributary from the left sluice of drop No. 5.	..	3,600	3,600	Rs. 3,215, 31st March 1900.
G.Os., No. 796 I., dated 1st Sept. 1897 and No. 873 I., dated 17th Oct. 1899.	Excavating No. 8 distributary taking off at 7 miles 3,440 feet on the left bank of the 12th branch channel.	..	9,300	9,300	Rs. 8,455, 31st March 1900.
G.Os., No. 887 I., dated 7th Oct 1897, and No. 873 I., dated 17th Oct. 1899.	Excavating 10th distributary channel at 8 miles 5,160 feet of the 12th branch cannel.	..	5,700	5,700	Rs 5,088, 31st March 1900.
G.Os., No. 787 I, dated 13th Oct. 1898 and No. 873 I., dated 17th Oct. 1899.	Excavating No. 5 distributary ..	..	3,650	3,650	Rs. 3,656, 31st March 1900.
G.Os., No. 367 I., dated 20th April 1899 and No. 829 I., dated 2nd Oct. 1900.	Excavating minor distributaries and field channels in the first 9 miles of the 12th branch channel.	..	4,300	4,300	31st March 1901.
G.Os., No. 361 I., dated 13th April 1897; No. 798 I., dated 27th Aug. 1900, and No. 829 I., dated 2nd Oct. 1900.	No. 7 distributary from proposed head sluice at 5 miles 4,100 feet.	..	4,714	4,714	Rs. 4,602, 31st March 1901.
G.Os., No. 361 I., dated 13th April 1897 and No 829 I., dated 2nd Oct. 1900.	No. 4 distributary from right sluice of drop No. 6 at 2 miles 140 feet.	..	6,200	6,200	Rs. 5,804, 31st March 1901.
Government of India, No. 1238 C.W.I., dated 5th Dec. 1899; (P.M.G., No. 9 I., dated 10th Jan. 1900) and No. 316 I., dated 10th Mar. 1902.	Excavating 6th distributary of the 12th branch channel and its five distributary channels.	..	33,300	33,300	Rs. 30,375, 31st March 1901.
G.Os, No. 299 I., dated 24th Mar. 1899 and No. 829 I., dated 2nd Oct. 1900.	Excavating a sub-distributary from the 9th distributary.	..	4,220	4,220	31st March 1901.
G.Os., No. 900 I., dated 9th Oct. 1897 and No. 829 I., dated 2nd Oct. 1900.	Excavating 9th distributary taking off at the 8th mile on the right bank of the 12th branch channel and constructing its masonry works.	..	24,300	24,300	Rs. 22,168, 31st March 1901.
G.Os., No. 586 I., dated 29th July 1898 and No. 829 I., dated 2nd Oct. 1900.	Excavating No. 11 and 11 (*a*) distributary from 10th mile.	..	10,650	10,650	Rs. 9,510, 31st March 1901.
G.O., No. 302 I., dated 26th March 1900.	Excavating field channels and constructing pipe and masonry sluices, etc., in the 12th branch channel below the 9th mile.	..	4,090	4,090	31st March 1901.
G O., No. 539 I., dated 10th June 1900.	Constructing the South Indian volunteer rifle range at Pasumalai Hill, Madura district.	6,500	..	6,500	31st March 1902.
G.O., No. 281 I., dated 19th March 1901.	Improvements to Vadagarai tank.	5,830	..	5,830	Do.

C.—Statement showing the estimates sanctioned under Open Capital Account—*cont.*

Sanctioning authority.	Names of works.	Sanctioned estimate including establishment and tools and plant charges.			Date of expiry of sanction.
		Class I (unremunerative).	Class II (remunerative).	Total.	
1	2	3	4	5	6
		RS.	RS.	RS.	
G.O., No. 429 I., dated 29th May 1901.	Constructing a drainage culvert and forming the left bank of main canal near the 35th mile.	1,560	..	1,560	31st March 1902.
G.O., No. 568 I., dated 18th July 1901.	Regrading the 5th distributary of the 12th Branch channel.	..	1,610	1,610	Do.
G.Os., No. 705 I., dated 16th Sept. 1901, and No. 367 I., dated 29th April 1899.	Excavating minor distributaries and field channels in the 12th Branch channel (1 to 9 miles).	..	6,900	6,900	Do.
G.O., No. 767 I., dated 9th Oct. 1901.	Improvements to Pudupatty tank.	1,570	..	1,570	31st March 1903.
G.O., No. 769 I., dated 9th Oct. 1901.	Abandoning tanks in the Velichinatham village in the 6th reach of the main canal.	1,780	..	1,780	31st March 1902.
G.O., No. 960 I., dated 13th Dec. 1901.	Improvements to Thinur Periya Kanmoyi.	2,250	..	2,250	Do.
G.O., No. 998 I., dated 20th Dec. 1901.	Improvements to Kattakulam tank.	4,000	..	4,000	Do.
G.O., No. 70 I., dated 18th Jan. 1902.	Enlarging the sluices in the 6th distributary of the 12th Branch channel and excavating the necessary field channels.	..	2,900	2,900	Do.
G.O., No. 74 I., dated 18th Jan. 1902.	Abandoning tanks between 4th and 6th distributaries, 12th Branch channel.	2,390	..	2,390	Do.
G.O., No. 87 I., dated 20th Jan. 1902.	Improving the Vadagarai channel, Periyár Project.	12,000	..	12,000	31st March 1903.
G.O., No. 276 I., dated 4th March 1902.	Constructing a slipway for the launches at Periyár.	4,060	..	4,060	Do.
G.O., No. 316 I., dated 10th March 1902.	Excess outlay incurred over the estimate of Rs. 11,800 for excavating the 6th distributary of the 12th Branch channel, Periyár Project, sanctioned in G.O., No. 1141 I., dated 22nd December 1897.	..	966	966	....
G.O., No. 339 I., dated 14th March 1902.	Constructing masonry sluices in the Vellary tank, Periyár Project.	1,520	..	1,520	31st March 1903.
G.O., No. 434 I., dated 12th April 1902.	Investigating a site for a storage reservoir in connection with the Periyár Project in the plains.	6,770	..	6,770	Do.
G.O., No. 544 I., dated 14th May 1902.	Excavating the Devimangalam drainage channel, XI reach of the main canal.	1,490	..	1,490	Do.
G.O., No. 570 I., dated 20th May 1902.	Improvements to the tail end of the 5th Branch channel.	1,323	..	1,323	Do.
G.O., No. 628 I., dated 4th June 1902.	Excavating Sundaranallur distributary, Chittampatti offtake, 9th Branch channel.	..	2,603	2,603	Do.
G.O., No. 651 I., dated 7th June 1902.	Excavating the Tirukkani distributary, 9th Branch channel.	..	2,388	2,388	Do.
G.O., No. 681 I., dated 16th June 1902.	Improvements to No. 204, Alathur tank, 9th Branch channel.	1,660	..	1,660	Do.
Do. do.	Improvements to Vilathur tank, Kunnathur offtake, 9th Branch channel.	1,993	..	1,993	Do.
Do. do.	Improvements to No. 197, Varichiyur tank, Kunnathur and Chunambur offtakes, 9th Branch channel.	7,761	..	7,761	Do.
Do. do.	Improvements to No. 192, Achangulam tank, Kunnathur offtake, 9th Branch channel.	7,443	..	7,443	Do.
Do. do.	Improvements to No. 231, Varaghaneri and No. 230, Semmalipuliyankulam tanks, Chittanpatti offtake, 9th Branch channel.	1,501	..	1,501	Do.
Do. do.	Improvements to No. 199, Thalathamarai tank, Kunnathur offtake, 9th Branch channel.	4,121	..	4,121	Do.
Do. do.	Improvements to Nos. 208 and 212, Kolikudi and Pottapanaiyur tanks, 9th Branch channel.	2,030	..	2,030	Do.

C.—Statement showing the estimates sanctioned under Open Capital Account—*cont.*

Sanctioning authority.	Names of works.	Sanctioned estimate including establishment and tools and plant charges.			Date of expiry of sanction.
		Class I (unremunerative).	Class II (remunerative).	Total.	
1	2	3	4	5	6
		RS.	RS.	RS.	
G.O., No. 681 I., dated 16th June 1902.	Improvements to No. 174, Mochivatty and No. 175, Periyakadambangudi tanks, Kunnathur offtake, 9th Branch channel.	4,147	..	4,147	31st March 1903.
G.O., No. 690 I., dated 18th June 1902.	Abandoning the beds of certain minor tanks above Pidariendal and excavating two drainage channels therefrom Chittampatti offtake, 9th Branch channel.	..	3,980	3,980	Do.
Do. do.	Abandoning Rajakkur and Kollavattan tank by excavating a drainage channel through them to terminate in the Vellankulam tank, Chittampatti offtake, 9th Branch channel.	..	2,952	2,952	Do.
G.O., No. 772 I., dated 12th July 1902.	Improvements to No. 51, Anaiyur tank of the Periyár Project.	2,688	..	2,688	Do.
G.O., No. 993 I., dated 22nd Aug. 1902.	Improvements to the Velangudy Periya Kanmoyi tank.	2,730	..	2,730	Do.
G.O., No. 1042 I., dated 6th Sept. 1902.	Improvements to Pathumboo west tank.	2,903	..	2,903	Do.
G.O., No. 1067 I., dated 13th Sept. 1902.	Improvements to No. 35, Silayaneri tank.	2,780	..	2,780	Do.
G.O., No. 1079 I., dated 17th Sept. 1902.	Enlarging the sluices in the distributary taking off from the Periyár main channel in the XI reach and continuing the field channel from the Pudukulam tank.	1,579	..	1,579	Do.
G.O., No. 1088 I., dated 19th Sept. 1902.	Extending the tail end of the Kovil Pappagudy offtake, 4th Branch channel, and excavating two minor distributaries and field channels.	..	2,330	2,330	Do.
	Total. ..	1,11,539	2,74,499	3,86,038	

PERIYAR PROJECT.

STATEMENT D comparing expenditure by main and sub-heads with provision in estimates sanctioned by Secretary of State or Government of India.

Head.	Sub-head.	Provision in estimate sanctioned by Secretary of State in G.O., No. 1057 I., dated 22nd December 1894.	Expenditure to end of 31st March 1897.			Probable further outlay classified.			Probable total outlay.	Difference between probable total outlay and provision sanctioned by Secretary of State or Government of India.	
			On completed works.	On works in progress.	Total.	Unremunerative.	Remunerative.	Total.		More.	Less.
1	2	3	4	5	6	7	8	9	10	11	12
	1. Head Works.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	
	1. Preliminary expenses	80,355	81,086	..	81,086	..	..	..	81,086	731	..
	3. Works	35,80,000	11,65,544	24,18,298	35,83,842	..	41,702	41,702	36,25,544	45,544	..
	4. Buildings	3,50,000	..	2,82,981	2,82,981	26	..	26	..	..	..
	5. Miscellaneous	1,80,000	..	1,76,547	1,76,547	226	..	226	..	..	..
	6. Maintenance during construction	96,645	74,559	..	74,559	..	..	..	..	..	..
	Unforeseen works	60,000	27,685	..	27,685	..	..	..	..	..	..
	Total, 1. Head Works ..	43,47,000	13,48,874	28,77,826	42,26,700	252	41,702	41,954	..	..	..
	2. Main Canals and Branches.										
	1. Preliminary expenses	24,708	24,650	..	24,650	..	..	..	..	..	..
	Miscellaneous	8,786	..	9,046	9,046	361	1,651	2,012	..	..	..
	Maintenance	17,098	..	3,380	3,380	..	121	121	..	..	..
	Total ..	50,592	24,650	12,426	37,076	361	1,772	2,133	..	..	..
	I. Reach.										
	Land	18,191	18,373	..	18,373	..	..	..	..	..	..
	Works	50,834	49,928	..	49,928	..	..	..	..	..	..
	Falls and weirs	6,625	4,500	..	4,500	..	..	..	..	..	..
	Cross drainage works	74,102	..	76,023	76,023	..	1,418	1,418	..	..	..
	Bridges	26,138	26,138	..	26,138	..	..	..	..	..	..
	Buildings	6,138	..	6,453	6,453	139	..	139	..	..	..
	Earthwork	1,50,758	..	1,81,151	1,81,151	..	3,892	3,892	..	..	..
	Maintenance	6,993	30,286	..	30,286	..	..	..	..	..	..
	Miscellaneous	..	..	..	..	1,814	..	1,814	..	..	..
	Total ..	3,39,770	1,29,225	2,63,627	3,92,852	1,953	5,310	7,263	..	..	..
	II. Reach.										
	Land	6,988	7,421	..	7,421	..	..	..	..	..	..
	Works	12,190	11,225	..	11,225	..	..	..	..	..	..
	Falls and weirs	2,075	2,075	..	2,075	..	..	..	..	..	..
	River and hill torrent works	17,485	17,485	..	17,485	..	..	..	..	..	..
	Cross drainage works	28,384	28,381	..	28,384	..	..	..	..	..	..
	Bridges	5,903	..	5,903	5,903	1,090	..	1,090	..	..	..
	Earthwork	53,541	..	53,541	53,541	..	597	597	..	..	..
	Buildings	..	..	310	310	204	..	204	..	..	..
	Maintenance	5,334	9,215	..	9,215	..	..	..	..	..	..
	Total ..	1,31,800	75,805	59,754	1,35,559	1,294	597	1,891	..	..	..

Statement D comparing expenditure by main and sub-heads with provision in estimates sanctioned by Secretary of State or Government of India—*cont.*

Head.	Sub-head.	Provision in estimate sanctioned by Secretary of State in G O., No. 1057 I., dated 22nd December 1894	Expenditure to end of 31st March 1897.			Probable further outlay classified.			Probable total outlay.	Difference between probable total outlay and provision sanctioned by Secretary of State or Government of India.	
			On completed works.	On works in progress.	Total.	Unremunerative.	Remunerative.	Total.		More.	Less.
1	2	3	4	5	6	7	8	9	10	11	12
	III. *Reach.*	RS.	RS.	RS.	RS.	RS.	RS.	RS.			
	Land	19,396	..	19,549	19,549	..	73	73	..	..	..
	Works	5,496	..	7,971	7,971	..	183	183	..	..	..
	Cross drainage works	1,10,512	1,10,733	..	1,10,733	..	..	..	..	..	..
	Bridges	10,632	10,632	..	10,632	..	..	..	..	..	..
	Buildings	244	1,963	..	1,963	..	..	..	..	..	..
	Earthwork	1,03,228	..	1,03,644	1,03,644	..	3,378	3,378	..	..	..
	Maintenance	8,990	11,489	..	11,489	..	..	..	..	..	..
	Total ..	2,58,498	1,34,817	1,31,164	2,65,981	..	3,634	3,634	..	..	..
	IV. *Reach.*										
	Land	5,584	5,610	..	5,610	..	..	..	..	..	..
	Works	1,388	1,388	..	1,388	..	..	..	..	..	..
	Falls and weirs	750	750	..	750	..	..	..	..	..	..
	Cross drainage works	8,972	8,978	..	8,978	..	..	..	..	..	..
	Bridges	3,150	3,071	..	3,071	..	..	..	..	..	..
	Earthwork	24,992	..	24,992	24,992	..	32	32	..	..	..
	Maintenance	1,834	3,108	..	3,108	..	..	..	..	..	..
	Total ..	46,620	22,905	24,992	47,897	..	32	32	..	..	..
	V. *Reach.*										
	Land	9,501	..	9,463	9,463	..	309	309	..	..	..
	Works	..	693	..	693	..	..	..	..	..	..
	Cross drainage works	55,373	55,374	..	55,374	..	..	..	..	..	..
	Bridges	7,361	7,361	..	7,361	..	..	..	..	..	..
	Buildings	4,300	4,627	..	4,627	..	..	..	..	..	..
	Earthwork	30,300	30,300	..	30,300	..	..	..	..	..	..
	Maintenance	4,656	6,624	..	6,624	..	..	..	..	..	..
	Total ..	1,11,491	1,04,979	9,463	1,14,442	..	309	309	..	..	..
	VI. *Reach.*										
	Land	3,837	4,171	..	4,171	..	..	..	..	..	..
	Falls and weirs	3,929	3,929	..	3,929	..	..	..	..	..	..
	Cross drainage works	22,837	22,265	..	22,265	..	..	..	..	..	..
	Bridges	8,094	7,975	..	7,975	..	..	..	..	..	..
	Earthwork	49,300	51,395	..	51,395	..	..	..	..	..	..
	Miscellaneous	..	..	..	..	..	..	..	..	..	..
	Maintenance	2,112	3,498	..	3,498	..	135	135	..	..	..
	Total ..	90,109	93,233	..	93,233	..	135	135	..	..	..

VII. Reach.										
Land	2,209	2,499	..	2,499	..	..	..	..	..	..
Works	..	543	..	543	..	..	..	..	..	..
Cross drainage works	20,402	20,402	..	20,402	..	..	..	..	..	..
Bridges	7,324	4,641	..	4,641	..	..	..	..	..	..
Earthwork	22,405	..	22,405	22,405	..	1,374	1,374	..	..	..
Miscellaneous	..	..	..	..	..	33	33	..	..	..
Maintenance	2,784	5,758	..	5,758	..	..	..	..	..	..
Total ..	55,124	33,843	22,405	56,248	..	1,407	1,407	..	..	..
VIII. Reach.										
Land	1,038	1,296	..	1,296	..	..	..	..	..	..
Works	8,150	7,944	..	7,944	..	..	..	..	..	..
Falls and weirs	2,440	2,440	..	2,440	..	..	..	..	..	..
Cross drainage works	1,000	1,054	..	1,054	..	..	..	..	..	..
Buildings	2,232	..	2,930	2,930	494	..	494	..	..	..
Earthwork	14,500	14,952	..	14,952	..	..	..	..	..	..
Maintenance	539	1,007	..	1,007	..	..	..	..	..	..
Total ..	29,899	28,693	2,930	31,623	494	..	494	..	..	..
IX. Reach.										
Land	725	725	..	725	..	..	..	..	..	..
Works	650	633	..	633	..	..	..	..	..	..
Cross drainage works	12,639	12,640	..	12,640	..	..	..	..	..	..
Buildings	14,438	..	..	..	..	..	..	..	..	..
Earthwork	10,099	10,108	..	10,108	..	..	..	..	..	..
Maintenance	1,045	1,897	..	1,897	..	..	..	..	..	..
Total ..	39,596	26,003	..	26,003	..	..	..	..	..	..
X. Reach.										
Land	361	367	..	367	..	..	..	..	..	..
Works	650	..	..	..	..	..	..	..	..	..
Cross drainage works	9,176	9,177	..	9,177	..	..	..	..	..	..
Bridges	2,000	1,998	..	1,998	..	..	..	..	..	..
Earthwork	4,800	..	4,305	4,305	..	58	58	..	..	..
Buildings	..	98	..	98	..	..	..	..	..	..
Maintenance	1,422	2,826	..	2,826	..	..	..	..	..	..
Total ..	17,809	14,466	4,305	18,771	..	58	58	..	..	..
XI. Reach.										
Land	5,854	..	4,050	4,050	..	2,074	2,074	..	..	..
Works	1,150	..	..	..	..	..	..	..	..	..
Falls and weirs	7,460	5,961	..	5,961	..	..	..	..	..	..
Cross drainage works	22,770	..	28,769	28,769	..	306	306	..	..	..
Bridges	7,110	4,231	..	4,231	..	..	..	..	..	..
Earthwork	39,512	..	65,398	65,398	..	172	172	..	..	..
Buildings	..	7,221	..	7,221	..	..	..	..	..	..
Maintenance	327	2,181	..	2,181	..	470	470	..	..	..
Miscellaneous	..	..	..	..	..	..	..	..	..	..
Total ..	84,183	19,594	98,217	1,17,811	..	3,022	3,022	..	..	..

Statement D comparing expenditure by main and sub-heads with provision in estimates sanctioned by Secretary of State or Government of India—*cont.*

Head.	Sub-head.	Provision in estimate sanctioned by Secretary of State in G.O., No. 1057 I., dated 22nd December 1894.	Expenditure to end of 31st March 1897.			Probable further outlay classified.			Probable total outlay.	Difference between probable total outlay and provision sanctioned by Secretary of State or Government of India.	
			On completed works.	On works in progress.	Total.	Unremunerative.	Remunerative.	Total.		More.	Less.
1	1	3	4	5	6	7	8	9	10	11	12
	XII. Reach.	RS.	RS.	RS.	RS.	RS.	RS.	RS.			
	Land	500	..	..	..	..	500	500	..	..	..
	Falls and weirs	1,000	..	..	..	..	..	..	..	..	..
	Cross drainage works	1,000	..	..	..	..	..	..	..	..	..
	Earthwork	6,000	6,532	..	6,532	..	..	..	..	..	..
	Total	8,500	6,532	..	6,532	..	500	500	..	..	..
	Total, 2. Main Canals and Branches	12,64,000	7,14,745	6,29,283	13,44,028	4,102	16,776	20,878	..	..	..
	3. Distributaries.										
	Preliminary expenses	10,496	..	10,346	10,346	..	388	388	..	..	..
	Buildings	1,600	..	..	..	..	..	..	..	..	..
	Maintenance	37,736	13,722	..	13,722	..	..	..	..	..	..
	Miscellaneous	..	..	..	..	..	..	..	..	..	..
	Unforeseen works	3,844	4,855	..	4,855	858	1,450	2,308	..	..	..
	Total	53,676	18,577	10,346	28,923	858	1,838	2,696	..	..	..
	I. Branch Channel.										
	Land	15,554	9,204	..	9,204	..	..	..	..	..	..
	Works	936	..	936	936	..	..	..	..	..	..
	Cross drainage works	3,620	..	2,643	2,643	..	1,960	1,960	..	..	..
	Bridges	400	365	..	365	..	282	282	..	..	..
	Earthwork	6,038	6,038	..	6,038	..	..	..	..	..	..
	Falls and weirs	6,196	5,808	..	5,808	..	..	..	..	..	..
	Miscellaneous	..	473	..	473	..	1,645	1,645	..	..	..
	Total	32,744	21,888	3,579	25,467	..	3,887	3,887	..	..	..
	II. Branch Channel.										
	Land	810	425	..	425	..	..	..	..	..	..
	Works	1,114	3,374	..	3,374	..	..	..	..	..	..
	Falls and weirs	2,645	2,005	..	2,005	..	..	..	..	..	..
	Cross drainage works	952	952	..	952	..	..	..	..	..	..
	Bridges	645	645	..	645	..	..	..	..	..	..
	Earthwork	4,435	..	4,435	4,435	..	1,125	1,125	..	..	..
	Miscellaneous	..	465	..	465	..	..	..	..	..	..
	Maintenance	75	75	..	75	..	..	..	..	..	..
	Total	10,676	7,941	4,435	12,376	..	1,125	1,125	..	..	..

III. Branch Channel.										
Land ..	3,150	..	2,714	2,714	..	436	436	..	..	..
Works ..	3,884	1,624	..	1,624	..	..	..	..	..	..
Falls and weirs ..	9,809	9,461	..	9,461	..	..	..	..	..	..
Cross drainage works	1,003	1,889	..	1,889	..	..	..	..	..	..
Bridges ..	615	615	..	615	..	..	..	..	..	..
Earthwork ..	8,335	8,345	..	8,345	..	..	..	..	..	..
Miscellaneous ..	3,490	..	..	..	..	..	..	..	..	..
Maintenance ..	912	1,072	..	1,072	..	..	..	..	..	..
Total ..	31,198	28,006	2,714	25,720	..	436	436	..	..	..
IV. Branch Channel.										
Land ..	8,100	..	6,053	6,053	..	2,047	2,047	..	..	..
Works	3,986	5,394	..	5,394	..	..	..	..	..	..
Falls and weirs ..	19,011	17,194	..	17,194	..	..	..	..	..	..
Bridges ..	4,847	3,446	..	3,446	..	..	..	..	..	..
Earthwork ..	37,750	..	36,500	36,500	..	8,794	8,794	..	..	..
Miscellaneous ..	11,057	..	7,060	7,060	..	681	681	..	..	..
Maintenance ..	1,182	2,029	..	2,029	..	..	..	..	..	..
Total ..	85,933	28,063	49,613	77,676	..	11,522	11,522	..	..	..
V. Branch Channel.										
Land ..	2,525	..	906	906	..	1,618	1,618	..	..	..
Works ..	1,551	1,071	..	1,071	..	..	..	..	..	..
Falls and weirs ..	9,441	..	5,289	5,289	..	911	911	..	..	..
Bridges ..	330	589	..	589	..	..	..	..	..	..
Earthwork ..	10,565	..	8,479	8,479	..	2,186	2,186	..	..	..
Miscellaneous ..	3,250	..	720	720	..	35	357	..	..	..
Maintenance ..	95	103	..	103	..	..	..	..	..	..
Cross drainage works	..	561	..	561	..	..	..	..	..	..
Total ..	27,857	2,324	15,394	17,718	..	5,072	5,072	..	..	..
VI. Branch Channel.										
Land ..	1,221	..	971	971	..	250	250	..	..	..
Works ..	1,100	733	..	733	..	..	..	..	..	..
Falls and weirs ..	4,650	2,465	..	2,465	..	..	..	..	..	..
Bridges ..	280	286	..	286	..	..	..	..	..	..
Earthwork ..	6,745	..	6,874	6,874	..	3,302	3,302	..	..	..
Miscellaneous ..	1,930	1,040	..	1,040	..	..	..	..	..	..
Total ..	15,926	4,524	7,845	12,369	..	3,552	3,552	..	..	..
VII. Branch Channel.										
Land ..	1,000	44	..	44	..	..	..	..	..	..
Works ..	1,100	914	..	914	..	..	..	..	..	..
Falls and weirs ..	4,590	..	..	..	..	..	..	..	..	..
Earthwork ..	1,460	345	..	345	..	..	..	..	..	..
Miscellaneous ..	1,280	..	..	..	..	..	..	..	..	..
Total ..	9,430	1,303	..	1,303	..	..	..	..	..	..

Statement D comparing expenditure by main and sub-heads with provision in estimates sanctioned by Secretary of State or Government of India—*cont.*

Head.	Sub-head.	Provision in estimate sanctioned by Secretary of State in G.O., No. 1057 I., dated 22nd December 1894.	Expenditure to end of 31st March 1897			Probable further outlay classified			Probable total outlay.	Difference between probable total outlay and provision sanctioned by Secretary of State or Government of India.	
			On completed works.	On works in progress.	Total.	Unremunerative.	Remunerative.	Total.		More.	Less.
1	2	3	4	5	6	7	8	9	10	11	12
	VIII. Branch channel.	RS.	RS.	RS.	RS.	RS.	RS.	RS.			
	Land	2,900	770	..	770	..	..	..	..	..	..
	Works	2,060	1,205	..	1,205	..	..	..	..	..	..
	Falls and weirs	7,750	2,687	..	2,687	..	..	..	..	..	..
	Earthwork	7,090	..	6,050	6,050	..	1,379	1,379	..	..	..
	Miscellaneous	1,930	130	..	130	..	..	..	..	..	..
	Total ..	21,730	4,792	6,050	10,842	..	1,379	1,379	..	..	..
	IX. Branch channel.										
	Land	12,950	..	4,270	4,270	10	8,680	8,690	..	..	..
	Works	5,490	3,521	..	3,521	..	..	..	..	..	..
	Falls and weirs	47,330	20,304	..	20,304	..	..	..	..	..	..
	Cross drainage works	5,000	..	6,505	6,505	..	1,520	1,520	..	..	..
	Bridges	3,140	6,309	..	6,309	..	..	..	..	..	..
	Buildings	3,400	..	1,050	1,050	2,988	..	2,988	..	..	..
	Earthwork	56,648	..	76,698	76,698	..	5,761	5,761	..	..	..
	Miscellaneous	13,440	..	5,764	5,764	..	3,939	3,939	..	..	..
	Total ..	1,47,390	30,134	94,287	1,24,421	2,998	19,900	22,898	..	..	..
	X. Branch channel.										
	Land	12,075	..	8,044	8,044	..	1,000	1,000	..	..	..
	Works	5,860	..	3,629	3,629	..	600	600	..	..	..
	Falls and weirs	16,910	..	21,047	21,047	..	2,986	2,986	..	..	..
	Cross drainage works	52,060	..	17,532	17,532	..	2,190	2,190	..	..	..
	Bridges	1,270	3,022	..	2,022	..	..	..	..	..	..
	Earthwork	66,225	..	87,266	87,266	..	8,624	8,624	..	..	..
	Miscellaneous	11,560	..	3,246	3,246	..	1,056	1,056	..	..	..
	Total ..	1,65,960	3,022	1,40,764	1,43,786	..	16,516	16,516	..	..	..

XI. Branch channel.										
Land ..	3,150	..	2,379	2,379	..	771	771	..	..	..
Works ..	1,530	..	..	..	..	3,040	3,040	..	..	..
Falls and weirs ..	7,680	..	..	..	..	..	..	..	..	..
Bridges ..	960	..	..	..	..	..	..	..	..	..
Earthwork ..	13,150	..	914	914	..	23,716	23,716	..	..	..
Miscellaneous ..	3,810	..	..	..	..	..	..	..	..	..
Total ..	30,280	..	3,293	3,293	..	27,527	27,527	..	..	..
XII. Branch channel.										
Land ..	5,850	5,567	..	5,567	..	..	..	..	..	..
Works ..	3,940	..	..	..	..	..	..	..	..	..
Falls and weirs ..	5,240	..	..	..	..	..	..	..	..	..
Bridges ..	3,020	..	..	..	..	..	..	..	..	..
Earthwork ..	54,220	..	9,563	9,563	..	63,297	63,297	..	..	..
Miscellaneous ..	9,930	..	..	..	..	..	..	..	..	..
Total ..	82,200	5,567	9,563	15,130	..	63,297	63,297	..	..	..
Total, 3. Distributaries ..	7,15,000	1,51,141	3,47,883	4,99,024	3,856	1,56,051	1,59,907	..	..	..
Grand Total ..	63,26,000	22,14,760	38,54,992	60,69,752	8,210	2,14,529	2,22,739	..	..	..

(Signed) A. T. MACKENZIE,
for Chief Engineer for Irrigation.

The figures of outlay have been verified in this office.

27th October 1902

(Signed) S. TOMKINS,
for Exr., P.W. Accts., Madras.

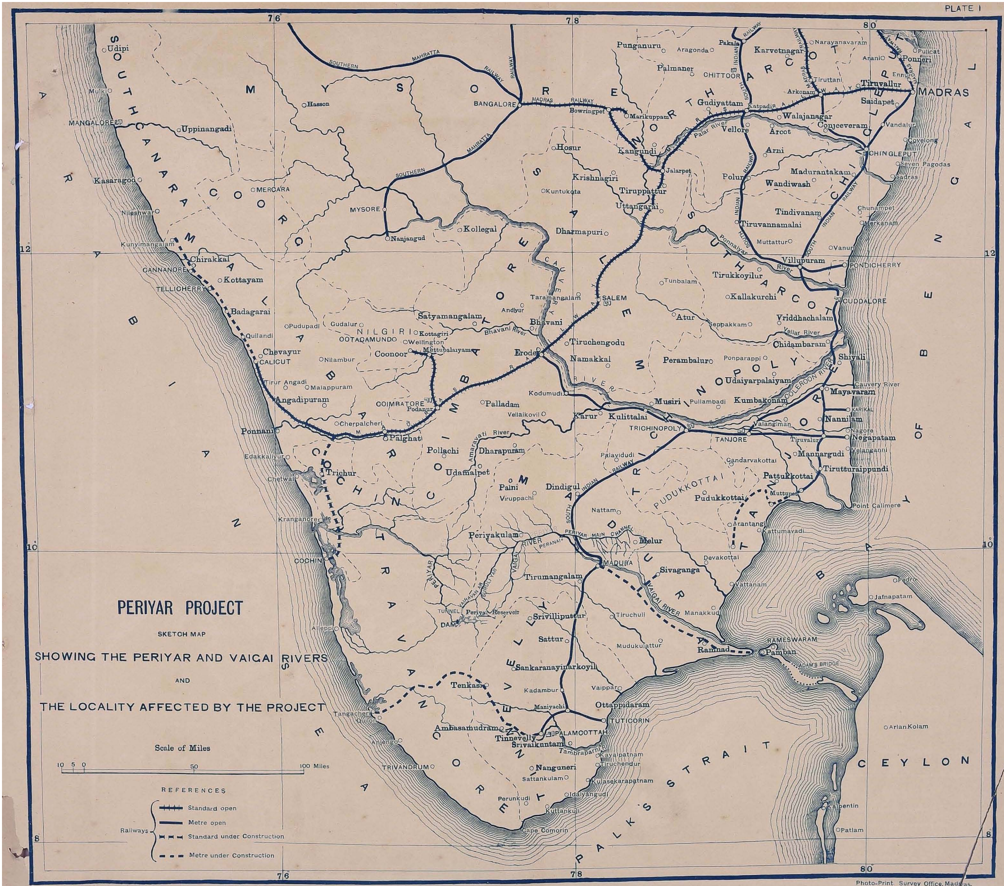

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PLATE NO. II
HEAD WORKS
Plan of Lake
and Ground in its immediate neighbourhood
with contours at 50 feet vertical intervals
Scale 2 Inches = 1 Mile
0
1 Mile
Note. The datum for the levels on this survey is the bed of the Periyar at the site of the dam which is 2837·36 feet above Mean Sea level and the figures are heights above this datum.
The area shewn by shading represents the waterspread of the Lake at Escape crest level (144 above datum)
Turbine Reservoir
To Travancore
Watershed between Vaigai and Periyar
Mullya Panjan
Present Road
Turbine
Channel
Dam
Tunnel
Wire Ropeway
Goodalur Ghat
Road
Takadi Camp
Cutting
No. 1 Lock
No. 2 Lock
Kythery Valley
New Road from Watershed to Site of Dam
No. 1 Dam
No. 2 Dam
No. 3 Dam
Escape
DAM
PERIYAR VALLEY
Site No. 3
Site No. 2
Site No. 1
Crossing of Watershed for Sites 1, 2 and 3
Watershed
Sairveyettai Stream
Chinna Mullyar
Chinna Mullyar Valley
Periya Mullyar Valley
Periya Mullyar
Gulnasai Valley
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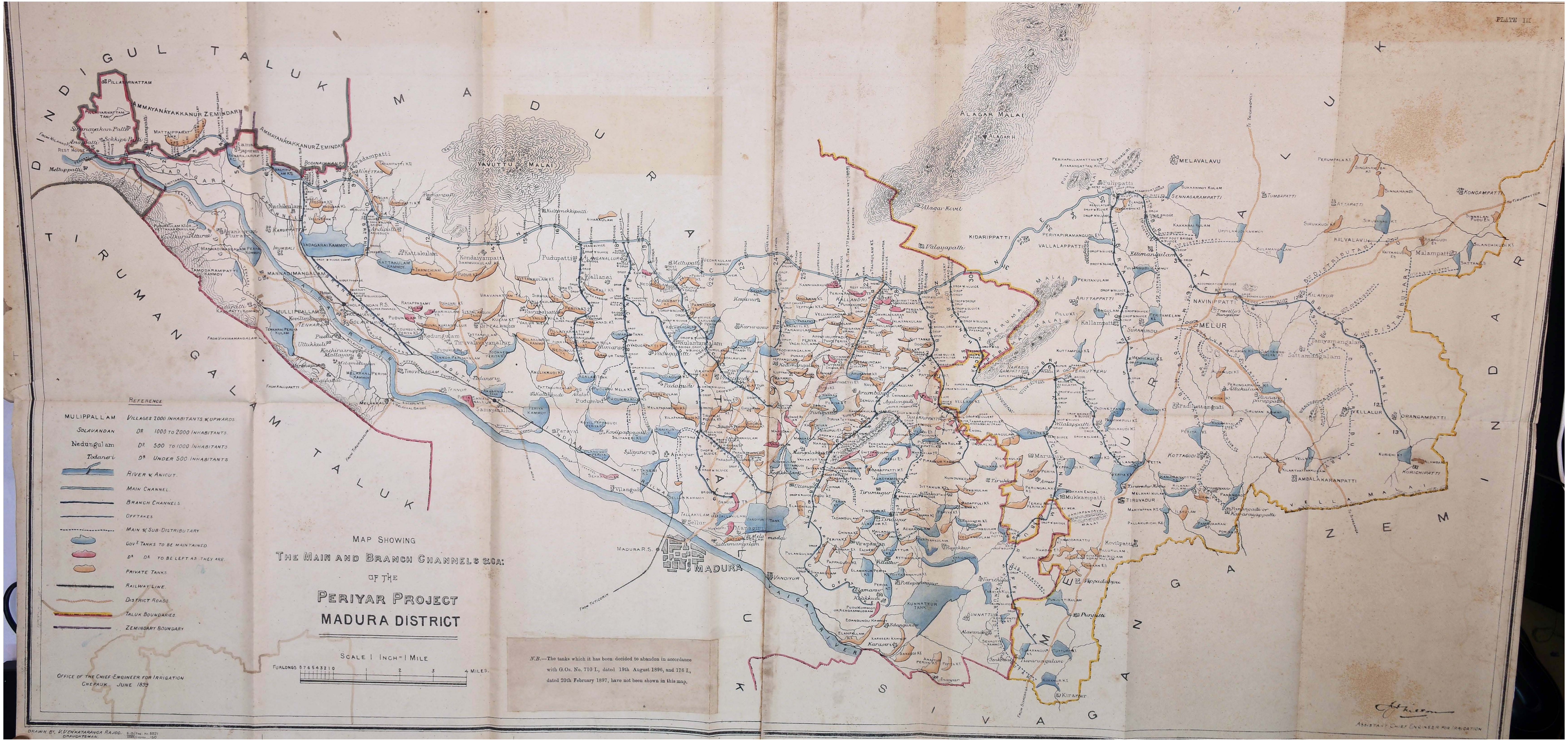
1901

PLATE III



MAP SHOWING
THE MAIN AND BRANCH CHANNELS &CA: OF THE
PERIYAR PROJECT
MADURA DISTRICT

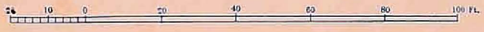
N.B.—The tanks which it has been decided to abandon in accordance with G.Os. No. 710 I., dated 19th August 1896, and 176 I., dated 20th February 1897, have not been shown in this map.

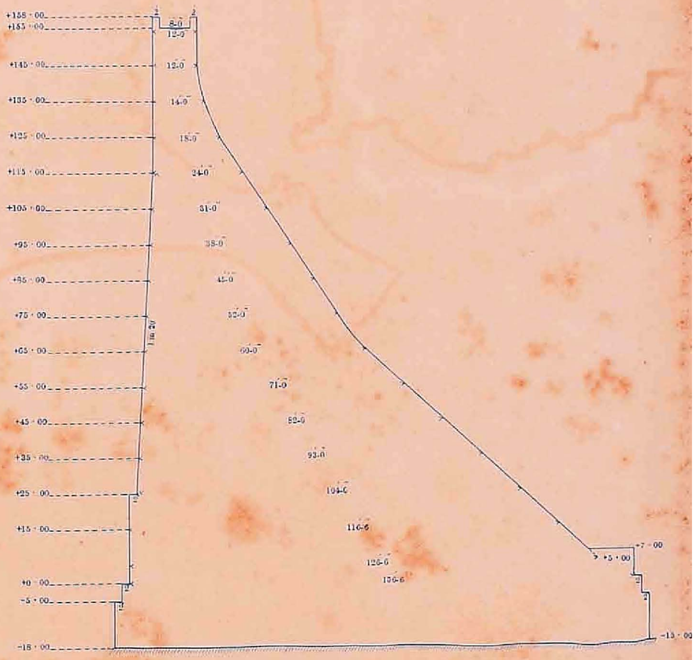
PLATE IV

PERIYAR PROJECT

CROSS SECTION OF THE MAIN DAM

Scale 30 Feet to 1 Inch





Reg: No. 6355
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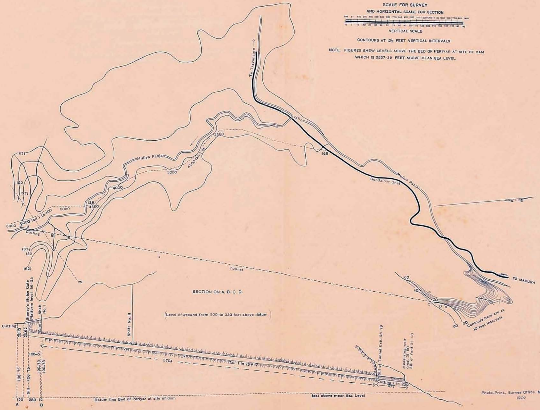
1901.

PLATE V

PLAN AND SECTION OF WATERSHED TUNNEL



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1902

[E. I. / 5] 1,000—19-3-02.

Public Works (1903) Department

(IRRIGATION BRANCH.)

Som

W. [illegible]

CURRENT No. 5250

From

[Name]

[Designation] Government of India P.W.D.

[Station] Simla

No. 627 C.W.I.

Dated 11th May 1903.

Enclosures { *Plans* / *Others* } *Total*

Spare copies

Received 18th May 1903.

Registered 20 — 5 — 1903

SUBJECT.

Completion Report of the Periyar Project Request to expedite the submission of the —

M.E.I.

BACK PAPERS.

Please see [illegible] [illegible] within

FURTHER PAPERS.

2

No. 627 C.W.I.

All communications should be addressed to the Secretary.

GOVERNMENT OF INDIA.

PUBLIC WORKS DEPARTMENT.

CIVIL WORKS

Irrigation

To

The Joint Secretary to the Government of Madras,

Public Works Department, Irrigation Branch.

Simla, the 11th May 1903.

Sir,

I am directed to invite attention to your No.1465 D dated the 24th September 1902, and to request that the submission of the Completion Report of the Periyar Irrigation Project may be expedited.

I have the honour to be,

Sir,

Your most obedient servant,

Stanley 11/5

Offg. Under Secy. to the Govt. of India

Documents accompanying :-

Nil.

Construction Estimate of the Periyar Project.

3

REVENUE DEPARTMENT.

L.O.R. C. No. 590, From the P.W.D., No. ______, Dated 18-8-1903.

To Under Secy.

There appears, it is submitted, no objection to the acceptance of the P.W. Deptt. draft order below. Attention is invited to the papers in ~~this~~ (Rev.) Deptt. tied separately ~~below~~ with red tape.

P.E.
21.8.03.

Secy [signature] 21/8/03

[signature] 22.8.03

Accepted
[signature]
26 viii. 03

Financial
791 R
27. 8. 3

To ~~P.W.D.~~ Finl. NO.

FINANCIAL DEPARTMENT.

A For the CS

The effect of the withdrawal of the orders of the Govt of India conveyed in their letter No 1024 C.W.I. dated the 2nd September 1902, ~~[illegible]~~ prohibiting further sanctions under Imperial - 49 Capital Expenditure not charged to Revenue, will be to transfer from Provincial to Imperial the expenditure incurred from Provincial funds in connection with the project.

D
G.O. 1187 I. 11-10-1902

2 It is submitted that the draft
order may be accepted

[illegible]
27.8.13

Cmd
27.8.13

[illegible]
28/8

H.E. The Governor.
The Hon'ble Sir H.M. Winterbotham K.C.S.I.
The Hon'ble Mr. J. Thomson C.S.I

PUBLIC WORKS DEPARTMENT,
IRRIGATION BRANCH.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the

READ the following

Report on the closure of the Construction estimate of the Periyar Project.

Submitted to Government for transmission to the Government of India with reference to their letter No 627 C.W.I., dated 11th May 1903.

2. In the circumstances stated under the head " Financial Results" in the completion report it is considered that the Project fulfils the conditions of a Productive Public Work and that there should therefore be no change in its present classification . The Government of India may therefore be requested to withdraw the orders conveyed in their letter No 1024 C.W.I dated 2nd September 1902 printed with G.O.No 1187 I dated 11th October 1902, under which further sanctions under " Imperial 49- Capital Expenditure not charged to Revenue -" are prohibited.

To

The Revenue and Financial Departments for c.i.

U.O.R. No. 590
dated 20-8-1903

Order No. 863 I dated 8-9-03

~~Ordered that~~ The Report on the closure of the Construction Estimate of the Periyar Project submitted by the Chief Engineer for Irrigation is approved.

2. Ordered that the report together with a copy of these Proceedings be ~~be approved and~~ forwarded to the Government of India with a request that the orders thereon may be communicated by wire to admit of funds provided under "49 Capital Expenditure not charged to Revenue" for expenditure on the Project during the current year being fully utilized.

1-9-03

3-9-03

4-9-03

H.E. No 864 I, dated 7-9-03

Endorsement

Forwarded.

18/8/03

18/8/03

DESPATCHED 8 SEP 1903

DESPATCHED OCT 1903

To the Chief Engineer for Irrign

" Supg. Engineer VI Circle.

" Examiner P.W. Accounts.

" Revenue Department.

" Financial Department

16-7-03

E. K. Form No. 1 —800 —12-7-03.

6.1.41 VI

5-1-51 VI